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CAPITAL STRUCTURE AND DEBT MATURITY CHOICES OF FIRMS IN DEVELOPING COUNTRIES

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Abstract

The aim of the thesis is to examine the leverage and debt maturity levels and the determinants of capital structure and debt maturity of firms in developing countries. We use World Bank Enterprise Survey data covering 10,839 firms in 24 countries located in five regions. The survey provides information about balance sheet and income statements items allowing us to examine whether capital structure theory is portable to small firms in developing countries. We find that the leverage and debt maturity levels of small and large firms are different. Leverage and debt maturities are lower for small firms despite their high asset tangibility and profitability ratios. We attribute this to the economic and financial environment of the country. Small firms do not consider profitability when making external financing decisions. Firm level determinants are important for large firms regarding capital structure and debt maturity decisions. However, most of the economic and financial environment variables become insignificant. Therefore, the main difference between small and large firms is derived from the impact of the economic and financial environment of a country. Most of the economic and financial environment variables do not have statistically significant effects on the leverage and debt maturity decisions of large firms. We attribute this to large firms' easy access to both domestic and international financial markets. Hence, if local governments provide better fiscal and monetary policies and a friendly business environment, small firms can amplify their leverage and debt maturity.

Abbreviations

AFR	African region
Civil	Civil law legal system
Dbacba	Deposit money bank assets to central bank assets
EAP	East Asia and Pacific region
GDP/Cap	Gross domestic product per capita
Growth	Growth of GDP
Interest	Lending interest rate
Large	Large companies (more than 500 employees)
LCR	Latin America and Caribbean region
Leverage	Total liabilities to total assets
Listed	Publicly held firms
LTD/TA	Long-term Liabilities to total assets
LTD/TD	Long-term liabilities to total liabilities
MNA	Middle East and North Africa region
Nrbloan	Offshore bank loans to GDP
Offdep	Offshore deposits to domestic deposits
Sale	Total Sales
SAR	South Asia region
Small	Small companies (less than 50 employees)
SMEs	Small and medium size enterprises
STD/TA	Short Term Liabilities to Total assets
Stockmrk	Stock market dummy
Tax	Corporate tax rate
Turnover	Stock market turnover
Unlisted	Privately held firms

CHAPTER 1

INTRODUCTION

1.1. Introduction

The purpose of this thesis is to investigate the leverage and debt maturity levels and the capital structure and debt maturity choices of companies in developing countries. We use firm level survey data for 24 countries in different stages of financial development from different regions. We analyse the impact of leverage and debt maturity levels on the size and listing status of the firms. Moreover, we investigate how small firms have access to financing and how this access affects their capital structure and debt maturity decisions. We also discuss the differences between the financing decisions of small and large firms. Previous literature has mainly focused on large listed firms in both developed and developing countries (Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1998, 1999; Booth et al., 2001). Work on small and medium sized firms are limited to some European countries where the economic and financial environments are more or less alike. There are a number of studies that examine the capital structure decisions of small and medium size enterprises (Ang, 1991; Holmes and Kent, 1991; Cosh and Hughes, 1994; Acs and Isberg, 1996; Daskalakis and Psillaki, 2008; Bartholdy and Mateus, 2008). But they are either examining a small number of countries (see Hall et al., 2004; Daskalakis and Psillaki, 2008; Bartholdy and Mateus, 2008 for cross country studies) or a single country in Europe (see Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005; Bartholdy and Mateus, 2005 for single country studies). Since the wealth of the countries is very low in the sample, the economic and financial environments are different from the European countries and some of the emerging markets covered in previous work. Specifically, some of the countries in the sample do not have a stock market. Therefore, it could be misleading to generalise the results of these studies.

The main focus of the thesis is to examine the determinants of capital structure and debt maturity decisions and access to financing for small firms in developing countries. Small firms are important in developing countries. They are more productive and labour intensive; therefore, their expansion enhances employment more than large firms. For instance, the workforce employed in SMEs for our sample varies between 27.60% and 86.50% (Ayyagari et al., 2005). We use a very rich database that specifically examines the financing decisions of small firms. About 90% of our private companies are small and medium sized, while about 70% of the listed firms in our sample are small and medium sized. We are looking for the answers to the following questions. Do the leverage and debt maturity levels indicate differences based on the size and listing status of firms? Is there a size effect on the capital structure and debt maturity decisions of firms? Are the determinants of capital structure and debt maturities different for small firms? Does the economic environment have an impact on the financing decisions of firms? Does the financial environment have an effect on the capital structure and debt maturity decisions of firms?

By using the World Bank Enterprise survey, we investigate the leverage and maturity levels and the determinants of capital structure of firms from 24 developing countries covering all regions including Africa, East Asia and the Pacific, Latin America and the Caribbean, the Middle East and North Africa, and South Asia. We demonstrate that capital structure theories hold in developing countries. We conclude that small firms are less levered than large firms and capital structure theories are portable to small firms, except Pecking order. Small firms are more

sensitive to the changes in the economic and financial environment than large firms. Large firms have higher leverage and longer debt maturity. We attribute this to their easy access to international financial markets.

In the following, we first explain the motivation of the thesis. In Section 1.3, we outline the structure of the thesis. Section 1.4 defines the objectives. The last section summarizes the main findings of the empirical chapters.

1.2. Motivation of the thesis

The databases used in previous studies provide firm level information on large listed companies in both developed and developing countries. For instance, Rajan and Zingales (1995) use the Global Vantage database. Their dataset includes large listed companies in G-7 countries. Booth et al (2001) focus on the developing countries. They collect the data from the International Financial Corporation (IFC) database for the largest listed companies in ten developing countries. Both databases only provide firm-level variables for large publicly listed firms. Alternatively, some studies focus on small and medium size enterprises. For example, both Bartholdy and Mateus (2008) and Daskalakis and Psillaki (2008) use the Amadeus database and collect data for SMEs. Amadeus provides firm level data for SMEs and large companies, but the database only contains firms from European countries. For instance, Bartholdy and Mateus (2008) analyze large and SMEs for 16 developed countries in Europe. Alternatively, Daskalakis and Psillaki (2008) present the results for SMEs in four developed countries including Greece, France, Italy, and Portugal. Yet all of these databases provide firm level data for either publicly listed companies in developed and developing countries or SMEs and privately held companies for

developed countries in Europe. Therefore, it is not possible to investigate SMEs in developing countries using those databases.

The determinants of capital structure and debt maturity of firms have been analyzed in developed and developing countries in previous studies (Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1998, 1999; Booth et al., 2001). Rajan and Zingales (1995) investigate capital structure decisions of large listed firms for the G-7 countries, while Booth et al. (2001) examine the financial leverage decisions of listed firms for ten developing countries. Demirguc-Kunt and Maksimovic (1999) analyze the relation between financing choices of firms and the level of financial market development in 30 developed and developing countries. However, those studies only include the large listed companies. Even if Demirguc-Kunt and Maksimovic (1999) examine the financing choices for both large and small firms, the firms included in the study are publicly listed companies. This implies that the small firms contained in their sample are relatively large, especially for developing counties. Since most large listed firms from any country are also one of the players in international trade, they can easily access international financial markets and institutions. However, this is not the case with SMEs.

The studies on SMEs are limited due to data limitations. There are some studies that examine the capital structure and debt maturity decisions of SMEs in European countries (Van der Wijst and Thurik, 1993; Gianetti, 2003; Hall et al., 2004; Bartholdy and Mateus, 2005, 2008; Sogorb-Mira, 2005; Daskalakis and Psillaki, 2008). Yet the countries included in those studies are European countries where the economic and financial environments of countries are similar. Therefore, it could be

misleading to generalize their results for other countries, especially for developing countries, around the world.

1.3. Structure of the thesis

The thesis is organized as follows. Chapter 2 explains the capital structure and debt maturity theories, and the empirical literature regarding capital structure and debt maturity. It also contains hypothesis development for the leverage and debt maturity, and firm level economic and financial environment factors. Chapter 3 presents the data and methodology. We explain the data and variables and discuss the methodology applied in the thesis and present the empirical evidence that we will use for Chapters 4, 5, and 6.

Chapter 4 shows the preliminary analysis of the dataset and stylized facts on the leverage, debt maturity and firm-level factors in developing countries. We discuss the leverage and debt maturity levels of firms in developing countries. We investigate whether the leverage and maturity levels of small and large firms are different. We do the same analysis for privately held and listed companies. Moreover, we examine the effect of the presence of a stock market on leverage and the debt maturity levels of firms. We conclude that small firms and privately held firms are less levered than large and listed companies. The difference is greater in the countries without a stock market.

Chapter 5 discusses the impact of the determinants of capital structure in developing countries. We empirically investigate the effect of firm level economic and financial environment variables on the leverage decisions of firms, specifically small firms.

We conclude that capital structure theories are portable to small firms, except pecking order, and the main difference between small and large firms is due to the economic and financial environment of the country.

Chapter 6 analyzes the impact of debt maturity structures of firms in developing countries. We investigate the effect of firm level economic and financial environment variables on the long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt, especially for small firms. We find that the debt maturity decisions of small firms are more sensitive to economic and financial environment changes than large firms. Chapter 7 provides our conclusion of the thesis.

1.4. Objectives of the thesis

In Chapter 4, we will discuss the World Bank Enterprise Survey and present the preliminary analysis of the dataset and stylized facts on the leverage, debt maturity and firm-level variables. We analyze the impact of the size and listing status on the leverage and debt maturity levels of firms. We also examine the existence of a stock market on the debt financing decisions of firms. At first, we explain the World Bank Enterprise Survey and then examine whether there is a difference between the leverage and debt maturity levels of small and large firms. We apply this same analysis to privately held and listed companies. As small firms, privately held companies are closed in nature. They are not as transparent as publicly listed companies. Therefore, it is easier for publicly listed companies to access both local and international financial markets. As a result, the leverage and maturity levels might indicate differences between privately held and listed companies. As some of

the countries in the sample do not have a stock market, we examine whether the presence of a stock market has an impact on the leverage and maturity levels of firms. We split our sample based upon countries with and without a stock market and then investigate this difference on the firms' leverage and maturity. We do identical analyses for small and large firms.

In Chapter 5, we investigate the determinants of capital structure for firms in developing countries. We initially analyze the firm level economic and financial environment determinants of capital structure for all of the firms in the sample. Then, we examine whether the determinants are different for small firms. Additionally, we apply various robustness tests. We consider the robustness of our results by using different definitions of size. Finally, since the majority of the previous studies investigate the determinants of capital structure for publicly listed companies, we divide the sample into two groups based on the listing status and examine whether the determinants are the same for privately held and listed firms.

In Chapter 6, we explore the determinants of the debt maturity structure of firms in developing countries. We analyze whether the determinants of debt maturity are different for small firms by analysing firm level economic and financial environment determinants. Then, we apply robustness tests using different definitions of size. We investigate whether the debt maturity structures of privately held firms are same as that of small firms since most SMEs are private companies.

1.5. Summary of the findings

Our main findings are as follows. The leverage and debt maturity levels of firms demonstrate differences based on the size, listing status, and the presence of a stock

market. We compare the leverage and debt maturity levels of small and large firms and privately held and listed companies. We conclude that small and privately held firms have lower leverage and shorter maturity of debt when compared to large and publicly listed companies. We also find that the existence of a stock market has an impact on the leverage and debt maturity levels of firms. Firms in a country with a stock market can use more leverage and longer maturity than those firms in countries without a stock market. This difference becomes significantly greater for small and privately held firms.

In Chapter 5, we analyze the determinants of capital structure in developing countries. We find that both firm level economic and financial environment determinants have an impact on the leverage decisions of firms. The capital structure theories are also portable to small firms, except the pecking order theory. We find that small firms are more sensitive to changes in the economic and financial environment than larger firms. We confirm the robustness of our results by using different definitions of size. As small firms, private firms are more affected by changes in the economic and financial environment in their capital structure and debt maturity decisions than publicly listed companies.

In Chapter 6, we investigate the determinants of the debt maturity structure. We find that firm level economic and financial environment determinants have an impact on the debt maturity decisions of firms. We conclude that theories are portable to small firms. The main difference between small and large firms is due to the effects of the economic and financial environment. When compared to large firms, small firms are more sensitive to the changes in the local economic and financial environment. As

small firms, the economic and financial environment influences the debt maturity decisions of privately held companies.

In conclusion, the main obstacle in the external financing decisions of small firms is driven by the economic and financial environment of the country. Since small firms do not have access to the international financial markets, their demand for funding has to be met in the local environment. Therefore, the alterations in the economic and financial environment in the country have a direct impact on their external financing decisions.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The purpose of this chapter is to review the previous literature regarding the external financing decisions of firms and develop our hypotheses accordingly. Firms have two kinds of external financing options: debt and equity. This combination of debt and equity illustrates the capital structure of a firm. The external financing decisions of firms depend upon the firm characteristics, as well as the economic and financial environment of a country. As analysed in the previous literature, firm characteristics have an impact on the capital structure and debt maturity decisions of firms. We also explore the effect of the economic and financial environment of a country on the external financing decisions of firms.

The theory of capital structure begins with Modigliani and Miller's (1958) irrelevance theorem. They propose that in perfect capital markets, the capital structure decision, the debt-equity ratio, does not affect the firm value. Based on this theory, three main capital structure theories emerged in the literature: Trade-off, pecking order, and agency theories. Each theory explores the choice between debt and equity.

Trade-off theory proposes that a firm's optimal debt ratio is determined by a trade-off between the tax benefits of debt and the cost of bankruptcy. Alternatively, according to the pecking order theory, firms follow a pecking order to finance new investments. Firms first prefer internal financing, then low risk debt, and, finally, equity financing. The agency theory suggests that agency costs (those costs created by the conflict of interest between shareholders, managers, and debt holders) determine the capital structure. The maturity matching principle proposes that the

length of loans should be matched to the length of the life of assets used as collateral; therefore, the longer the asset life, the longer the maturity of the debt. Based on these theories, we discuss the determinants of capital structure and debt maturity and develop the hypotheses.

The empirical literature regarding capital structure discusses the determinants of both developed and developing countries. For instance, Titman and Wessels (1988) examine the factors for the U.S. companies, while Rajan and Zingales (1995) investigate the determinants of capital structure for G-7 countries. Booth et al. (2001) analyse the capital structure decisions of firms for ten developing countries. Still, all of these studies focus on large listed companies. There are few studies in the literature that focus on the financing decisions of SMEs. Hall et al. (2004) investigate the cross county differences in SME financing decisions for eight European countries, while Daskalakis and Psillaki (2008) examine the determinants of SMEs in Greece and France. Finally, Bartholdy and Mateus (2008) analyze the financing decisions of SMEs for sixteen European countries. However, the main focus of these studies is on the SMEs in developed countries, which provide an economically and financially developed environment.

The main difference in the financing choices of small and large firms comes from their ability to access the external financing. Small firms have limited access to external financing due to information asymmetries and agency problems. When compared to large firms, it is difficult for creditors to assess the quality and value of the small firms' investment opportunities due to information asymmetries. Small firms have a close nature as they have fewer disclosure requirements and are not

required to provide audited financial statements (Pettit & Singer, 1985). Another issue is the agency problem between managers and creditors. In general, managers and owners are the same person in the small firms; therefore, managers may be inclined to act in their own interest and misallocate funds as opposed to focusing on the interests of creditors (Denis, 2004). Thus, information opacity and agency problems limit small firms' access to external financing.

As small firms, privately held firms also have a closed structure. Unlike publicly listed companies, they do not have to provide information to stock exchanges and credit agencies. They are not required to disclose as much information as publicly listed companies. As such, they are not as transparent as publicly listed companies. When compared to listed companies, privately held companies have limited and more costly access to external financing due to information opacity.

In addition to the characteristics of small and privately held firms, external financing decisions are not solely dependent upon firm choice. There are external factors that limit the availability of external financing in a country, especially for developing countries. This limited availability of external financing may be due to the scarcity of external funds in developing countries due to unstable macroeconomic policies. Since SMEs do not have access to international financial markets, local instabilities may limit access to financing for those firms in developing countries. In addition to macroeconomic policies, the previous literature also discusses the impact of the financial environment on the capital structure and debt maturity decisions of firms (Demirguc-Kunt and Maksimovic, 1998, 1999; Fan et al., 2011). The financial environment of a country is important since the quality and efficiency of this

environment influences the availability of external financing. Since developing countries are not as economically and financially as developed as developed countries, the external financing decisions of firms may be different than firms in developed countries. Therefore, we examine the determinants of capital structure and debt maturity decisions of firms, focusing not only the impact of firm level determinants, but also on the effect of the economic and financial environment of a country.

The determinants that we apply are grouped under three headings including firm level, economic environment, and financial environment determinants. Firm level variables used are asset tangibility, profitability, and size. We explain them in accordance with each of the theories. We also discuss their effect on small and large firms. Economic environment variables include GDP per capita, growth, inflation, interest, and tax. Financial environment determinants consist of corruption, legal systems, financial institutions, and financial globalization.

In this chapter, we review the literature regarding capital structure. First, we explain capital structure theory including trade-off theory, pecking order theory, and agency theory. As a second step, we discuss the determinants of capital structure based on previous empirical literature both for developed and developing countries. We also review the empirical literature on SMEs and their capital structure decisions. Then, we explain how the economic environment of a country impacts the financing decisions of firms. Finally, we present the factors of financial environment and their effects on the financing decisions of firms.

2.2. Capital Structure Theory

Capital structure demonstrates how a firm finances its assets through some combination of equity and debt. The firm's capital structure is actually the structure of its liabilities, mix of debt, and equity. The properties of debt and equity illustrate some differences. Debt is a contract between lenders and borrowers. By a debt contract, borrowers accept to pay a fixed amount contingent upon not defaulting. This property makes debt insensitive to firm performance. The returns of debt financing for lenders do not fluctuate with changes in a company's profit level; it is fixed. Therefore, lenders do not face financial risk. The debt is a low cost contract that permits a large degree of control by the borrower, while it provides little incentive to lenders for selecting and monitoring the projects ultimately financed. This makes debt contracts accurately priced when compared to equity in situations involving asymmetric information. Moreover, interest paid for debt is tax deductible decreasing the effective cost of debt. Conversely, debt has some disadvantages. A higher debt ratio makes firms appear risky. Therefore risky firms must pay higher interest rates increasing the cost of their debt. Since debt contracts are binding, it may drive the firm to bankruptcy. This bankruptcy cost limits the amount of debt financing.

The theory of capital structure begins with the capital structure irrelevance proposition of Modigliani and Miller (1958). They explain that in perfect capital markets, the financing decisions of firms have no effect on their value. They confirm that in the absence of bankruptcy costs, corporate income taxation, or other market imperfections, firm value is independent of its financial structure in competitive capital markets. They have two propositions under these conditions. First, they infer

that the value of a company is not dependent upon its capital structure. Additionally, the cost of a leveraged firm is the same as the cost of equity for an unleveraged firm. Therefore, according to them, the debt-to-equity ratio has no impact on the total value of a firm. However, based on this theory, within the literature there are three main theories of capital structure: the trade-off theory, the pecking order theory, and the agency theory. In the following sections, we first explain the Modigliani and Miller (1958) theorem, and then discuss the trade-off, pecking order, and agency theories, respectively.

2.2.1. Modigliani and Miller theorem

The Modigliani and Miller theorem (1958), also known as the capital structure irrelevance principle, states that in perfect capital markets, firm value is not affected by financing decisions surrounding it. According to this theory, the value of a firm is not dependent upon its capital structure in competitive capital markets in the absence of bankruptcy costs, corporate income taxation, or other market imperfections. Thus, the financing choice of a firm, either debt or equity, does not make any difference in the firm's value. They have two propositions under these conditions. According to Proposition I, the value of a company is not dependent on its capital structure. They came to this conclusion by using the following assumptions:

- Capital markets are perfect; there are no transaction costs and taxes
- Bankruptcy cost does not exist
- Firms and individuals can borrow at the same rate
- Debt is risk free and the interest rate on debt is risk free debt

- Financing decisions do not affect investing decisions

Let's suppose that we have two identical firms, but their capital structures are different. Firm U is financed strictly by equity, while the Firm L is financed by a mix of equity and debt. According to the Modigliani and Miller (1958) theorem, the value of these two firms (Firm U and L) is equal. Hence:

Proposition I: $V_U = V_L$ where V_U is the value of Firm U, financed solely with equity, and V_L is the value of Firm L, financed partly by equity and partly by debt. The cost of a leveraged firm is the same as the cost of equity for an unleveraged firm. The debt-to-equity ratio has no impact on the total value of the firm. Consequently, according to Proposition I, the capital structure of a firm does not have an impact on the value of the firm.

Proposition II, a derivation of Proposition I, proposes that the return on equity has a linear relationship with leverage. In this proposition, the return on equity capital is an increasing function of leverage. The required rate of return increases as the firms' debt to equity ratio boosts. This is because debt financing raises the riskiness of the firm. Therefore, the equity holders demand higher required return on equity due to the higher risk involved in a company with debt.

Proposition II:

$$k_e = k_0 + D / E(k_0 - k_d)$$

k_e is the required rate of return or cost of equity

k_0 is the company unlevered cost of capital (i.e., assume no leverage)

k_d is the required rate of return on borrowings or cost of debt

D/*E* is the debt-to-equity ratio.

Thus, according to Proposition II, the cost of equity for a leveraged firm is the same as the cost of equity for an unleveraged firm, plus an added premium financial risk.

In conclusion, by assuming perfect capital markets, Modigliani and Miller (1958) propose that the value of a company is independent of its capital structure. However, in the real world, capital markets are not perfect and capital structure matters in the financing decisions of firms. The Modigliani and Miller (1958) theorem is important as it indicates where to look for determinants of capital structure. Beginning with this theory in the literature, there are three main theories of capital structure (i.e., the trade-off theory, the pecking order theory, and the agency theory). Each has tried to provide an explanation for the choice between debt and equity finance.

2.2.2. Trade-off theory

The trade-off theory claims that a firm's optimal debt ratio is determined by a trade-off between the losses and gains of borrowing, holding the firm's assets and investment plans constant (Brennan & Schwartz, 1978; DeAngelo and Masulis, 1980; Bradley et al., 1984). The goal is to maximize firm value. For that reason, debt and equity are used as substitutes. The starting point of the trade-off theory is the debate over the Modigliani and Miller (1958) theorem. If corporate income tax was included in the irrelevance proposition of the Modigliani and Miller (1958) model, it would produce an advantage for debt in terms of tax shields. Since there is no offsetting cost of debt and the objective function of the firm is linear, firms can be financed by 100% debt. Due to this extreme situation, bankruptcy costs are used to offset the cost of debt. According to this argument, optimal leverage is defined as a

trade-off between the tax benefits of debt and bankruptcy costs (Kraus and Litzenberger, 1973; Scott, 1977). Firms could choose debt because it is tax deductible, even though it increases the risk of bankruptcy and financial distress. Basically, bankruptcy costs increase with the degree of leverage.

Trade-off theory is divided into two parts: static trade-off theory and dynamic trade-off theory. Static trade-off theory assumes that firms target their capital structure. Firms determine their financing needs based on the optimal capital structure. If the leverage ratio departs from the optimal choice, the firm will alter its financing attitude back to the optimal level. Unlike the static trade-off theory, the dynamic trade-off theory considers the expectations and adjustment costs. The correct financing decision depends upon the financing margin that the firm predicts in the next period. The optimal capital structure choice today is based on what is expected to be optimal in the next period. The optimal capital structure in the next period could be either generating new funds or paying them out. If new funds are generated, they may be in the form of debt or equity. In each case, the optimal capital structure in the next period will aid in pinning down a relevant comparison for the firm in the current period.

In the literature, to test the trade-off theory, different proxies are used such as asset tangibility, profitability and firm size. The trade-off theory assumes that these three proxies, asset tangibility, profitability, and firm size, increase the leverage of firms. Tangible assets can be used as collateral. Therefore, the higher the collateral, the higher the leverage that firms may have. Consequently, this theory expects a positive relation between debt financing and tangibility. Profitability and firm size are also

expected to be positively related to leverage. Profitable firms should prefer debt to benefit from tax shields. Also, in many asymmetric information models such as Ross (1977), profitable firms are suggested to have higher leverage. Firm size is accepted as a proxy for bankruptcy cost. The probability of bankruptcy for large firms is lower as compared to small firms since they have higher fixed assets. Thus, large firms have more debt than small firms as firm size is positively related to leverage.

2.2.3. Pecking order theory

The pecking order theory was developed by Myers and Majluf (1984) and states that capital structure is driven by a firm's desire to finance new investments, first internally, then with low risk debt, and finally, if all else fails, with equity. Unlike the trade-off theory, this theory does not offer optimal capital structure. However, it demonstrates the preference of firms' use of internal financing as opposed to external financing. The pecking order theory begins with asymmetric information, asserting that firm managers or insiders have more knowledge about the company's value, prospects, and risks than outside investors. The theory discusses the relationship between asymmetric information and investment and financing decisions. Asymmetric information has an effect on the choice between internal and external financing; in other words, the choice between use of debt or equity. According to this theory, informational asymmetry increases the leverage of the firm to the same extent. Firms are likely to have funding with the lowest degree of asymmetric information. Since outside lenders do not have complete information about the borrower, they will increase the cost of borrowing. Therefore, to minimize the cost of borrowing, firms prefer to use internal funds first, then debt, and, only as a last resort, outside equity. The pecking order appears as managers do not prefer to

dilute existing shareholders' claims. As such, only overvalued securities are issued. External investors, by considering this possibility, reduce the firm's value to show adverse selection costs.

The standard pecking order theory demonstrates a particular case of the adverse selection discussion regarding external financing. Akerlof (1970) proposes adverse selection and discusses the reasons for the significant decrease in the price of used cars as compared to new cars. The seller of the used car has more information about the performance of the car than the buyer. Therefore, the buyer's best guess of the performance of the car would be the average. The buyer expects that if the car is proposed in the market, the performance of the car must be below the average. Hence, the price of used cars drop and cars that are proposed for sale are the ones that are not well made or maintained. Buyers look for discounts to compensate for the possibility that they might purchase an Akerlof (1970) lemon. In this case, the seller knows about any problems with the car, but the buyer does not. This is true for companies, as well. In a firm, managers have better knowledge about the true value of the company than outsiders do. Stiglitz and Weiss (1981) find that the adverse selection cost of debt arises when lenders know the mean, but not the variable of the borrowers' investment. Myers and Majluf (1984) confirm that adverse selection costs are always higher for equity than debt issues. As such, issuing equity is never optimal. There is a wedge between the cost of internal and external finance. Since markets are imperfect, information problems result in adverse selection and moral hazard problems for external financing. This wedge also results from adverse selection problems and the associated lemons premium. Among the three sources of funding, retained earnings is the only one that does not have adverse selection

issues. Debt has only minor adverse selection problems, while equity exposes a firm to significant adverse selection issues. Outside investors see equity as riskier than debt because the adverse selection risk premium is high on equity. Therefore, outside investors request higher returns on equity than debt. Alternatively, for managers or insiders, retained earnings are a better source of financing than debt and debt is better than equity.

In contrast, Ross (1977) argued that capital structure could be used as a signal of private information. Therefore, the capital structure choice of a firm is taken as a signalling factor by outsiders about the information of insiders. High debt levels signal good firm quality. When bankruptcy costs are low enough, managers are able to issue debt and commit to higher cash flow. For lower quality firms, since their expected bankruptcy costs are high at any debt level, it is not possible for their managers to imitate higher quality firms by issuing more debt. However, due to the asymmetric information and signalling problems associated with external financing, the financing choices of firms follow an order, with a preference for internal over external finance and for debt over equity. As a result, the main point of this theory is financial market imperfections. Transaction costs and asymmetric information link the firm's ability to undertake new investments to its internally generated funds.

In the previous literature, some proxies are used to test the pecking order theory, such as asset tangibility, profitability, and firm size. The trade-off theory also assumes a positive relation between asset tangibility and leverage. Since tangible assets can be used as collateral and collateral mitigates information asymmetry problems, we expect positive relationship between tangibility and leverage.

Profitability is expected to be negatively related to leverage. As Myers and Majluf (1984) proposed that firms follow the pecking order, they prefer to use internal funds first. That's why we expect a negative association between profitability and leverage. Firm size is expected to be positively related to leverage. Large firms are generally more diversified and have less volatile earnings. Lower earnings volatility mitigates the asymmetric information problem. Large firms have been on the markets for a while and they are better known. They have better reputations in the debt markets as they face lower information costs when borrowing as compared to small firms.

2.2.4. Agency theory

Agency theory focuses on the costs that are created due to conflicts of interest between shareholders, managers, and debt holders. According to Jensen and Meckling (1976), capital structures are determined by agency costs. They find that optimal capital structure is the result of the trade-off between the benefit (discipline of management) and cost (excess risk-taking by shareholders) of debt financing. Following the Jensen and Meckling model (1976), other models, such as Harris and Raviv (1990) and Stulz (1990), emerge based on agency costs. In their models, the conflicts between managers and shareholders occur due to disagreements over operating decisions. Harris and Raviv (1990) infer that even if shareholders or debt holders prefer liquidation of the firm, managers always choose to continue the firm's business. This model provides rights to shareholders to force liquidation if cash flows are poor. Alternatively, Stulz (1990) assumes that managers always prefer to invest all usable funds even if paying out cash is better for shareholders. However, debt constrains the amount of free cash flow available for profitable payments.

Therefore, according to these models, capital structure is determined by the conflicts of interest between inside and outside investors. The nature of the firm's assets and growth opportunities are crucial factors in the importance of these agency costs.

Asset tangibility may also be a proxy for agency theory. Agency theory proposes that a higher amount of collateral reduces the risk of lenders who suffer the agency costs of debt, like risk shifting. Large amount of tangible assets or collateral reduce the risk shifting problem; therefore, firms can increase their borrowing capacity. Moreover, it also eliminates the moral hazard issue caused by the shareholder and lenders conflict (Jensen & Meckling, 1976). Hence, this theory expects a positive relation between asset tangibility and leverage. Firm size has a positive impact on leverage. Since larger firms are more mature firms, they have reputation in debt markets; as such, they face lower agency costs of debt.

Although the theories try to explain the choice between debt and equity, there is still no clear cut definition. There is still no single model available to test all the theories, as well as the differences among theories. As demonstrated above, the variables that are used as proxies are included in the models to test the theories, but the same proxy can explain more than one theory. However, it is still not clear which theory firms should follow in their capital structure decisions.

2.3. Empirical Literature on Capital Structure

The related empirical literature has discussed the determinants of capital structure for both developed and developing countries. The factors that affect the firms' debt-equity choice have been empirically discussed based on the attributes that different

capital structure theories propose. For developed countries, the determinants of capital structure are analysed both within a country and across countries (Titman & Wessels, 1988; Rajan & Zingales 1995; Gianetti, 2003). Titman and Wessels (1988) consider the factors that affect the financing decisions of firms in the U.S. They define the factors as assets structure, non-debt tax shields, growth, uniqueness, industry classification, size, earnings volatility, and profitability.[1] They find that leverage is positively related to size, but negatively related to uniqueness and profitability; whereas, asset structure, non-debt tax shields, growth, industry classification, and earnings volatility have no effect on leverage. They note a negative association between profitability and leverage due to the transaction costs This finding is consistent with the pecking order theory that firms prefer internal to external financing. Across countries, Rajan and Zingales (1995) examine the determinants of capital structure across G-7 countries by studying four factors: asset tangibility (the ratio of fixed to total assets), the market-to-book ratio, firm size, and profitability. They note a negative relationship between leverage and market-to-book and profitability, while they find positive relation between leverage and asset tangibility and size.

Alternatively, some studies examine the variables that affect capital structure decisions in developing countries (Booth et al., 2001; Demirguc-Kunt & Maksimovic, 1996; 1998). Booth et al. (2001) analyse the financial leverage decisions of listed companies from 1980-1990 across 10 developing countries including India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea. Their variables are chosen based on the theoretical models of

[1] Uniqueness defined as research and development expenditures.

capital structure: the trade-off theory, the pecking order theory, and the agency theory. They find that size has a positive effect on leverage, while the average tax rate, asset tangibility, the return on assets, or profitability have negative effects on leverage. For market-to-book and business risk, they could not find any overall significance.[2]

Previous empirical studies in capital structure have focused more on large listed firms. The literature on SMEs is limited due to the unavailability of data. There are a number of studies that examine small and medium size enterprises (Ang, 1991; Holmes and Kent, 1991; Cosh and Hughes, 1994; Acs and Isberg, 1996; Beck and Demirguc-Kunt, 2006; Daskalakis and Psillaki, 2008; Bartholdy and Mateus, 2008). Some of these studies have discussed only the applicability of the capital structure theories (e.g., trade-off, pecking order, and agency theories) to the small firms. Other studies analyse the economic and financial environment of a country, in addition to the applicability of the capital structure theories.

Few studies have examined the applicability of the capital structure theories to small firms. Based on these studies, the capital structure decisions of SMEs are in accordance with the pecking order theory (Ang, 1991; Holmes and Kent, 1991; Cosh and Hughes, 1994), but in contrast to the trade-off theory (Pettit and Singer, 1985). According to the trade-off theory, higher profitability decreases the expected costs of distress and allows firms to increase their tax benefits by raising leverage. Therefore, firms should prefer debt financing because of the tax benefit. This theory may be applicable for large firms, which are more likely to generate high profits.

[2] Business risk is measured as the standard deviation of the return on assets.

But for small firms, because they are less likely to have high profits, they may not have the option to choose debt financing for the tax shields advantage (Pettit and Singer, 1985).

In contrast, small firms' financing decisions are expected to be in accordance with the pecking order theory. As the theory explains, firms prefer internal over external financing and debt over equity. Since small firms are opaque and have important adverse selection problems that are explained by credit rationing, they bear high information costs (Psillaki, 1995). These costs are very high when issuing new capital, but for internal funds, the costs are nonexistent. Alternatively, for debt financing, the costs are in an intermediate position between equity and internal funds. Therefore, small firms prefer debt over equity to finance their new investments. Another reason for this preference may be the control over the firm. Since small firms are run by a few managers, they may not want to lose or reduce their control and decision-making power of the firm (Hamilton and Fox, 1998). They perceive debt financing as a lower level of intrusion with lower risks of losing control and decision making power than equity.

Agency and asymmetric information problems are also more complex for small firms (Pettit and Singer, 1985). As managers are largely the owners in small firms, there are no or very few agency costs of equity. However, agency conflicts between shareholders and lenders can be particularly severe (Van der Wijst, 1989; Ang, 1992). Small firms may face agency problems as the managers may have an incentive to misallocate their funds and to behave contrary to the interest of creditors (Denis, 2004). Also due to asymmetric information, outside investors have difficulty

in analysing the quality and value of the firm's investment opportunities. Insiders have more information about the prospects of the firm. One of the reasons for this information asymmetry is that small firms have fewer disclosure requirements; therefore, they generally have a close nature (Pettit and Singer, 1985). Additionally, the quality of information provided by small firms varies. Small firms are not required to provide audited financial statements to external investors (Berger and Udell, 1998). Even though investors may prefer audited financial statements, small firms may want to avoid these costs or the small firm's managers or staff may not be able to come up with useful information (Ang, 1991). This information opacity is seen as the main reason for small firms' inability to issue publicly traded securities (Berger and Udell, 1998). When compared to large firms, they have different problems, such as shorter expected life, presence of estate tax, intergenerational transfer problems, and prevalence of implicit contracts (Ang, 1992). As a result, small firms have a higher probability of insolvency than large firms. They are seen as risky (Berryman, 1982). Capital structure choices of SMEs are expected to demonstrate greater variability as compared to large firms (Hall et al., 2004). Therefore, the applicability of the theory to small firms can be different.

As small firms, the external financing decisions of privately held companies might display differences when compared to publicly listed companies. Publicly listed companies are obliged to provide information to the stock exchange. Additionally, newspapers observe them on a regular basis as opposed to privately held firms who only present an annual report once a year. Listed firms must provide accessible, credible information to the public. They also prepare information for the credit agencies. Moreover, they incur the high fixed costs of being listed. Therefore, this

disclosure makes listed companies more transparent, so that they incur lower costs of debt than privately held firms. That may be one of the reasons why privately held firms borrow from a bank rather than financial markets and for listed firms to easily access financial markets. Therefore, because of these factors and fixed transaction costs of long-term debt, privately held firms would be expected to have more problems accessing long-term debt and financial markets. Consequently, we can expect that small firms and privately held companies would have more short-term debt than large firms and publicly listed companies.

Previous studies indicate that country specific factors have an impact on the external financing decisions of firms. The studies demonstrate the challenges faced by SMEs while accessing outside financing and find that country specific factors, such as creditor rights and legal efficiency, have an impact. Beck et al. (2008) find that small firms are the most credit constrained due to underdeveloped financial and legal systems and higher corruption. Bushman et al. (2004) and Francis et al. (2001) confirm that firms in common law countries are more transparent than firms in civil law countries. Morck et al. (2000) find that markets in countries with poorer investor protection and less developed financial systems have higher volatility. Following Morck et al. (2000), Jin and Myers (2006) propose a new theory by expanding Myers' (2000) to conditions where firms have opaqueness. They report that a lack of transparency is inclined to boost the cost of raising equity and lessens the cost of financial distress. Hence, this lack of transparency forces firms to depend more heavily on internal funds or debt capital to meet their financing needs. Alternatively, Brush and Chaganti (1998) find that ownership structure and creditors' rights protection have a significant positive impact on the size and performance of SMEs.

Moreover, borrowing and lending decisions and the attitude of business decision makers toward outsiders may demonstrate variation between countries. Lending is also related to the attitudes of financial institutions towards SMEs which are driven by risk considerations. Basically, information opacity is the major reason for small firms' inability to access to external financing, especially equity financing. Small firms are much more dependent upon bank financing. Since banks are able to examine the quality of small business by using tools, such as screening, contracting, and monitoring, they are able to address agency and information asymmetry problems (Berger and Udell, 1995, 1998).

Thus far, the capital structure decisions of SMEs have been studied for a single country (Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005; Bartholdy and Mateus, 2005) or using cross country comparisons (Hall et al., 2004; Daskalakis and Psillaki, 2008; Bartholdy and Mateus, 2008). Hall et al. (2004) examine the cross country differences in SMEs capital structure for eight European countries including Belgium, Germany, Spain, Ireland, Italy, Netherlands, Portugal, and the UK. They infer that the reason for cross country differences in SMEs capital structure is due to the firm specific, rather than country specific, effects. In accordance with Hall et al. (2004), Daskalakis and Psillaki (2008) support the effect of firm specific factors in the capital structure determinants of SMEs for France and Greece. The firms included in both studies are only small and medium size companies that have less than 250 employees. In contrast, Bartholdy and Mateus (2008) investigate the capital structure decision of SMEs for the period 1994-2004 for sixteen Western European countries. As opposed to the other studies, they conclude that country specific factors, such as law, regulation, and macroeconomic factors, have also an

impact on leverage decisions. Additionally, they find that the traditional financing theories (trade-off and pecking order) seem to hold for SMEs in an international setting. In addition to the above mentioned studies, they also include unlisted large companies. Yet, as in previous studies, their main focus is on privately held firms.

Most studies on the capital structure decisions of SMEs have focused on the developed countries in Europe. Those studies only concentrate on unlisted SMEs, with the exception of Bartholdy and Mateus (2008). Bartholdy and Mateus (2008) also take unlisted large companies into consideration, but their study is limited to privately held firms. Moreover, those studies discussed above consider only European countries. Alternatively, there have been other studies that have examined the capital structure decisions of firms for both developed and developing countries (Rajan and Zingales, 1995; Booth et al., 2001). Rajan and Zingales (1995) study the capital structure decisions of large listed companies for G-7 countries, while Booth et al. (2001) analyse the financial leverage decisions of listed companies for ten developing countries. But those studies only include large listed companies (public companies). Since most large listed firms from any country are also one of the players in international trade, they may easily have access to international financial markets and institutions. Therefore, it could be misleading to generalize the results of these studies for each firm, especially for SMEs. However, the studies for SMEs only consider those specific countries that are similar in their economic and financial environment. Thus, it is not possible to distinguish the economic and financial environment effects. In the light of this, we will first examine the leverage and debt maturity levels of firms and then investigate the capital structure decisions of firms for both small and large firms. The countries that we include in the sample are

emerging market countries from different regions. The countries included have different levels of financial development. Therefore, we can observe more accurately whether firm-specific or economic and financial environment factors have an impact on the capital structure decisions of firms.

Therefore, we examine these determinants and develop our hypotheses. First, we investigate the impact of size and listing status on leverage and the debt maturity levels of firms. Next, we discuss firm level determinants and their relationship to capital structure and debt maturity, including the separation between small and large firms. Then, we analyze the relation between the economic environment and the capital structure and debt maturity of firms. Finally, we look into the association between the financial environment of a country and the leverage and debt maturity structures of firms. While developing the hypotheses, we focus on the related empirical literature on capital and debt maturity structures both for developed and developing countries.

2.3.1. Leverage

Since some firms are more transparent and provide more reliable information, lenders are more willing to finance them. In contrast, when some firms have information asymmetry and adverse selection problems due to their opaqueness, it becomes difficult for them to access external financing. Therefore, some firms enjoy greater financing through external resources when compared to others. This difference may be due to the size of the firms and their listing status. Hence, we expect that:

Hypothesis 1: Small firms are less levered than large firms.

Hypothesis 2: Privately held companies have lower leverage than listed firms.

The difference in leverage levels of the firms might come from the financial environment of the country. For instance, the existence of a stock market in a country has an effect on the external financing decisions of firms. Since the stock market is another provider of external financing, it increases the availability of external financing in that country. Therefore, we expect:

Hypothesis 3: Firms in countries with a stock market will be more levered than the firms in countries without a stock market.

2.3.2. Debt maturity

For debt maturity, we use three proxies: long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt. Maturity of the debt depends on the riskiness of the firm. Lenders do not prefer to offer long-term debt if the firms carry high risk. This is especially applicable to small firms. Small firms are mostly owned and run by the owner of the company, so the agency conflict between shareholders and lenders is expected to be severe (Van der Wijst, 1989; Ang, 1992). Moreover, due to their opaqueness, they have higher levels of information asymmetry and adverse selection problems. Therefore, their maturity would be shorter. Hence, we expect:

Hypothesis 4: Small firms have shorter maturity than large firms.

Publicly listed companies have to provide information regularly to the stock exchange. They are more transparent and they have better information disclosure making it easier to get information about the prospects of listed companies. As a result, lenders are more willing to provide longer maturities to them as compared to privately owned firms. Hence, we expect that:

> Hypothesis 5: Privately held companies have shorter maturity than publicly listed companies.

The financial environment of a country might also have an impact on the debt maturity of firms. For example, the existence of a stock market increases the availability of financing in that country; therefore, more external financing becomes available for firms. Thus, the maturity may be longer. We expect that:

> Hypothesis 6: Firms in a country with a stock market have longer maturity than firms in a country without a stock market.

2.3.3. Firm level factors

In this section, we explain the firm level proxies used in relation to the capital structure theory. The firm level proxies that we use are asset tangibility, profitability, and size. Previous literature discusses other firm level proxies, but in this study, we could not include them due to the unavailability of data. For that reason, in this section, we only focus on the factors that we will apply and their possible differential impact on small versus large firms and publicly listed companies versus privately held firms.

2.3.1.1. Asset Tangibility

As discussed by capital structure theories, the type of asset a firm owns in some way has an impact on the capital structure choice of that firm. Scott (1977) proposes that debt, secured by property with known values, allows firms to increase their equity value by expropriating wealth from their existing unsecured creditors. Alternatively, according to Myers and Majluf (1984), issuing securities may be costly as firms' managers have better information than investors. Thus, by issuing secured debt, they can avoid these costs. For this reason, firms that can use their assets as collateral may be expected to issue more debt. Since fixed assets are used as collateral, firms with a large amount of fixed assets should have greater borrowing capacity and, therefore, can maintain higher debt levels while decreasing expected bankruptcy costs.

Tangible assets are important since they are used as collateral making it easier for firms to reach debt financing. Collateral becomes vital when firms are opaque and managers have more information about the prospects of the company than investors or debtors. Since debtors want to secure their debts, they ask for higher amounts of collateral. Therefore, we expect:

Hypothesis 9: Small firms have more tangible assets than large firms.

As small companies, privately held companies are not as transparent as publicly held companies and the information about the prospects of the company are not as readily

available as in the case of listed companies. Therefore, debtors might ask for higher collateral to be able to secure the debt. Hence, we expect that:

> Hypothesis 10: Privately held companies have higher levels of tangible assets than publicly listed companies.

The financial environment of the country might also have an effect on the level of tangible assets that a firm has. For instance, if a country does not have a stock market, the only external financing source would be debt financing for these firms. Firms in those countries without a stock market should have higher levels of tangible assets to be able to borrow. Hence, we expect:

> Hypothesis 11: Firms in countries without a stock market have higher tangible assets than firms in countries with a stock market.

According to the trade-off theory, firms would prefer debt over equity until the point where the probability of financial distress becomes important. The type of assets that a firm has determines the cost of financial distress. For instance, if a firm invests largely in land, equipment, and other tangible assets, it will have smaller costs of financial distress than a firm relying on intangible assets. Therefore, when a firm possesses more tangible assets, lenders should be more willing to extend them credit and leverage should be higher (Scott, 1977; Harris and Raviv, 1990). Furthermore, according to the agency theory, a greater amount of collateral decreases the risk of the lender suffering agency costs associated with debt, like risk shifting. Through collateral, lenders are protected from the moral hazard problem caused by the conflict of interest between shareholders and lenders (Jensen and Meckling, 1976).

Consequently, firms with a high ratio of fixed assets should have greater borrowing capacity. Most empirical studies have found a positive relationship between asset tangibility and leverage (Titman and Wessels, 1988; Rajan and Zingales, 1995; Ozkan, 2002). Therefore, we expect positive correlation between asset tangibility and leverage for all firms. Alternatively, firms with large holdings of tangible assets may already have a constant source of return, offering them more internally generated funds and discouraging them from turning to external financing. As such, we would expect a negative relationship between leverage and asset tangibility as firms with more tangible assets appear to prefer using internal funds generated from these assets. Moreover, according to the maturity matching principle, the length of the loans should be matched to the length of the life of the assets used as collateral (Myers, 1977). Thus, long-term assets should be financed with long-term debt (Booth et al., 2001). We would expect debt maturity to increase with asset tangibility.

The previous empirical literature finds a positive correlation between asset tangibility and leverage and debt maturity for large firms. The limited literature on small firms also supports this positive relationship between asset tangibility and leverage and debt maturity (Van der Wijst and Thurik, 1993; Michaelas et al., 1999; Hall et al., 2004; Sogorb-Mira, 2005). Therefore, we expect positive association between asset tangibility and leverage and debt maturity for both large and small firms and publicly listed and private firms in accordance with the trade-off, pecking order, and agency theories.

Hypothesis 12a: Leverage is positively related with asset tangibility.

a. Leverage of large firms is positively related with asset tangibility.
b. Leverage of small firms is positively related with asset tangibility.
c. Leverage of publicly listed firms is positively related with asset tangibility.
d. Leverage of privately held firms is positively related with asset tangibility.

Hypothesis 12b: Debt maturity is positively related with asset tangibility.

a. Debt maturity of large firms is positively related with asset tangibility.
b. Debt maturity of small firms is positively related with asset tangibility.
c. Debt maturity of publicly listed firms is positively related with asset tangibility.
d. Debt maturity of privately held firms is positively related with asset tangibility.

2.3.1.2. Profitability

The profitability of the firms is important since it is another source of funding. Profitable firms can use their own internal sources to finance themselves. Furthermore, it is easier to access debt financing for profitable firms since the bankruptcy risk of those firms is lower. Therefore, we expect that:

Hypothesis 13: Large firms are more profitable than small firms.

We do not expect any significant difference between privately held and publicly held firms. Hence:

> Hypothesis 14: The profitability of publicly held firms is the same as publicly listed firms.

The profits level might also be different for firms in countries with a stock market and firms in countries without a stock market. Since countries that have a stock market are more financially developed, the efficiency and profitability of the firms operating in those countries should be higher. Therefore, we expect that:

> Hypothesis 15: Firms in countries with a stock market have higher profitability than firms without a stock market.

Myers and Majluf (1984) suggest that firms prefer financing their new investment from retained earnings first, from debt second, and from issuing new equity third. Firms choose to follow this order due to either asymmetric information or transaction costs. In both cases, the past profitability of a firm and their retained earnings should be an important determinant in the firm's capital structure. Since firms prefer internal to external financing, one would expect a negative correlation between profitability and leverage (Harris and Raviv 1991; Rajan and Zingales 1995; Booth et al. 2001). On the other hand, according to the trade-off theory, leverage and profitability are expected to be positively related. Higher profitability lowers the expected costs of distress; therefore, firms increase their leverage to take

advantage of tax benefits. As such, the sign of the relationship will help distinguish which theory is supported.

Most studies have noted a negative relationship as proposed by the pecking order theory, including Titman and Wessels (1988), Rajan and Zingales (1995), Booth et al. (2001). The studies about SMEs also confirm the pecking order relationship (Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005). Since the managers of small firms are also the owners of the company, they would prefer to maintain control over their firms (Holmes and Kent, 1991; Hamilton and Fox, 1998) and do not want to accept new shareholders. Therefore, they prefer to utilize internal financing to finance firm activity. Hence, we would expect to find a negative correlation between profitability and leverage and debt maturity for all types of firms in accordance with the pecking order theory.

Hypothesis 16: Leverage is negatively related with profitability.

a. Leverage of small firms is negatively related with profitability.
b. Leverage of large firms is negatively related with profitability.
c. Leverage of publicly listed firms is negatively related with profitability.
d. Leverage of privately held firms is negatively related with profitability.

Hypothesis 17: Debt maturity is negatively related with profitability.

a. Debt maturity of small firms is negatively related with profitability.
b. Debt maturity of large firms is negatively related with profitability.

c. Debt maturity of publicly listed firms is negatively related with profitability.
d. Debt maturity of privately held firms is negatively related with profitability.

2.3.1.3. Size

Size may be inversely related to the probability of bankruptcy as well as to the cost of issuing debt and equity. Large firms are comparatively more diversified and fail less often. This suggests that large firms should be highly leveraged. In contrast, when compared to large firms, small firms pay much more for issuing equity (Smith, 1977) and long-term debt. Therefore, small firms may have more short-term debt than large firms. They may choose to borrow short-term rather than long-term debt due to the lower fixed costs of short-term debt. Thus, we can expect a positive correlation between long-term debt and size; whereas, short-term debt would be inversely related to size (Hall et al, 2004).

According to the trade-off theory, firm size may be an inverse proxy for the probability of bankruptcy costs. Larger firms are likely to be more diversified and fail less often. They can lower costs (relative to firm value) in the occasion of bankruptcy. Therefore, size has a positive effect on leverage. The pecking order theory also expects this positive relationship. Since large firms are diverse and have less volatile earnings, the asymmetric information problem can be mitigated. Size is expected to have positive impact on leverage and debt maturity. We expect small firms to be negatively related with leverage and debt maturity, while large firms are

positively related to leverage and debt maturity in accordance with both the trade-off and pecking order theories.

Hypothesis 18: Leverage is positively related with size.

Hypothesis 19: Debt maturity is positively related with size.

2.3.2. Economic environment factors

In the previous section, we discuss the impact of firm level variables on the capital and debt maturity structures of firms in accordance with the theories. However, the financing decision is not only dependent upon the firms' decision. There are external factors, such as the economic environment, that have an effect on the availability of external financing in a country. The economic environment of a country plays a significant role in the firms' financing decisions, especially for developing countries. It is well known that external financing in developing countries is scarce when compared to developed countries due to unstable macro policies. Therefore, a government's decisions regarding fiscal and monetary policies have a direct impact on the economic environment of the country and, as a result, on the capital and debt maturity decisions of firms. By using fiscal policy, governments influence the level of aggregate demand in the economy in an effort to achieve the economic objectives of price stability and economic growth. Alternatively, governments may use monetary policy to stabilize the economy by controlling interest rates and the supply of money. Thus, fiscal policy decisions have an effect on the tax rates, while monetary policy decisions influence the rate of inflation and interest rates. For instance, changes in corporate tax rates have a direct effect on the capital and debt maturity structure decisions of firms due to the tax shields (Modigliani and Miller,

1963; Miller, 1977). Moreover, interest rates are determined by monetary policies that have a direct impact on the cost of borrowing and, therefore, on the capital and debt maturity decisions of firms. High inflation in developing countries may have an effect on the scarcity of debt financing, especially in the long term. Hence, the economic development of a country affects the capital and debt maturity structure decisions of its firms (Rajan and Zingales, 1995; Booth et al., 2001).

Previous studies also confirm that capital and debt maturity structure decisions are not only dependent upon firm specific factors, but also on country specific variables. Gaud et al. (2007) examine the capital structure decisions of listed firms in Europe and conclude that the trade-off and pecking order theories are not sufficient to explain the capital structure decisions in Europe. They demonstrate that the national environment does matter in capital structure decisions. Fan et al. (2011) investigate the capital and debt maturity choices for listed firms in 39 countries and conclude that the country in which the firm is located has a greater impact on capital structure decisions than the industry in which it operates. Hall et al. (2004) analyze the capital structure decisions of SMEs for European countries and find that even though firm level determinants explain the capital structure decisions of SMEs, these firm level determinants indicate differences among countries. Hence, country specific factors have an effect on the capital and debt maturity decisions of firms. We use the following macroeconomic variables to investigate the impact of country specific factors on the capital and debt maturity decisions of firms: GDP per capita, growth rate of GDP, inflation rate, interest rate, and tax rate (Demirguc-Kunt and Maksimovic, 1996, 1999, Bartholdy and Mateus, 2008).

2.3.2.1. GDP per capita

GDP per capita provides the income level of countries (Beck et al., 2008). It is a broad indicator that describes the differences in wealth in each country, and is accepted as a general measure of economic development (Morck et al., 2000). As countries getting richer and economically more developed, more financing becomes available. Also, the economy of the country becomes more developed. As a result, we expect GDP per capita to be positively related with leverage and debt maturity for all firms.

Hypothesis 20: Leverage is positively related with GDP per capita.

a. Leverage of small firms is positively related with GDP per capita.
b. Leverage of large firms is positively related with GDP per capita.
c. Leverage of publicly listed firms is positively related with GDP per capita.
d. Leverage of privately held firms is positively related with GDP per capita.

Hypothesis 21: Debt maturity is positively related with GDP per capita.

a. Debt maturity of small firms is positively related with GDP per capita.
b. Debt maturity of large firms is positively related with GDP per capita.
c. Debt maturity of publicly listed firms is positively related with GDP per capita.

d. Debt maturity of privately held firms is positively related with GDP per capita.

2.3.2.2. Growth

Growth rate of the economy is included as a measure of the growth opportunities available to firms in the economy. On an individual firm level, the growth rate is a proxy for the investment opportunity set faced by firms (Smith and Watts, 1992) and its effect on the optimal financing of projects (Myers, 1977). Therefore, we expect economic growth to be positively related with leverage and debt maturity for all firms. Alternatively, high growth in developing countries may encourage firms to list and issue equity (Glen and Pinto, 1994). Finance theory proposes that for growth options, firms should not prefer debt financing (Demirguc-Kunt and Maksimovic, 1996). Thus, we would expect an inverse relation between growth and leverage and debt maturities.

Hypothesis 22: Leverage is positively related with growth.

a. Leverage of small firms is positively related with growth.
b. Leverage of large firms is positively related with growth.
c. Leverage of publicly listed firms is positively related with growth.
d. Leverage of privately held firms is positively related with growth.

Hypothesis 23: Debt maturity is positively related with growth.

a. Debt maturity of small firms is positively related with growth.
b. Debt maturity of large firms is positively related with growth.

c. Debt maturity of publicly listed firms is positively related with growth.
d. Debt maturity of privately held firms is positively related with growth.

2.3.2.3. Inflation

Inflation indicates the government's management of the economy and provides evidence regarding the stability of the local currency. Countries with high inflation are associated with high uncertainty about future inflation (Demirguc-Kunt and Maksimovic, 1996). Since debt contracts are generally nominal contracts, the rate of inflation may influence the riskiness of debt financing. Lenders are more likely to avoid providing debt under high inflation reducing the availability of debt financing. We expect inflation to be negatively related to leverage and debt maturities for all firms. In contrast, Taggart (1985) suggests a positive correlation between debt and inflation due to the properties of the tax code. Firms may benefit more from tax deductions on debt if inflation is high. Therefore, the trade-off theory supports this positive relationship between debt and inflation. Frank and Goyal (2007) find the same positive association. If managers can time their debt, they can use debt financing when inflation is higher than interest rates.

Hypothesis 24: Leverage is negatively related with inflation.

a. Leverage of small firms is negatively related with inflation.
b. Leverage of large firms is negatively related with inflation.
c. Leverage of publicly listed firms is negatively related with inflation.
d. Leverage of privately held firms is negatively related with inflation.

Hypothesis 25: Debt maturity is negatively related with inflation.

a. Debt maturity of small firms is negatively related with inflation.
b. Debt maturity of large firms is negatively related with inflation.
c. Debt maturity of publicly listed firms is negatively related with inflation.
d. Debt maturity of privately held firms is negatively related with inflation.

2.3.2.4. Interest rate

Interest rates have a direct impact on borrowing decisions. As interest rates increase, firms are less willing to finance new investments by debt due to this increase in the cost of borrowing (Bartholdy and Mateus, 2008). In addition to the firms' reaction to the changes in interest rates, creditors may also have preferences. Increases in debt financing also boost the risk of a firm. Based on the risk of the firm, creditors adjust their interest rates by increasing them or refusing to lend to the firms that are highly leveraged (Glen and Pinto, 1994). For small firms, lenders might wish to charge higher interest rates in order to compensate for any additional costs, such as contracting costs and monitoring costs they incur due to the agency and asymmetric information problems of small firms. Thus, interest is expected to be inversely related with leverage and debt maturity for all firms.

Hypothesis 26: Leverage is negatively related with interest.

a. Leverage of small firms is negatively related with interest.
b. Leverage of large firms is negatively related with interest.
c. Leverage of publicly listed firms is negatively related with interest.

d. Leverage of privately held firms is negatively related with interest.

Hypothesis 27: Debt maturity is negatively related with interest.

a. Debt maturity of small firms is negatively related with interest.
b. Debt maturity of large firms is negatively related with interest.
c. Debt maturity of publicly listed firms is negatively related with interest.
d. Debt maturity of privately held firms is negatively related with interest.

2.3.2.5. Tax

Debt financing provides firms tax advantages in terms of interest deductibility. While interest payments associated with debt can be deducted from taxes, payments paid to equity holders, such as dividends, are not. By assuming that personal income is tax exempt, debt has a tax advantage. DeAngelo and Masulis (1980) find that firms with large non-debt tax shields employ less debt. The large amount of non-debt tax shields, such as depreciation and investment tax credits, allow firms to have higher probability of negative taxable income. Therefore, we can expect a negative relationship between firms with large non-debt tax shields and leverage. The measure used to proxy non-debt tax shields is total depreciation divided by total assets.

According to the trade-off theory, firms prefer debt financing because debt is tax deductible. This tax benefit of debt allows firms to borrow more in accordance with increases in the tax rate. Hence, we expect tax to be positively related with leverage. The tax advantage of borrowing can be applied to large firms, which are more likely

to generate high profits. Since small firms are less likely to post high profits, this tax advantage may not be reason enough to choose debt financing for the tax shields advantage (Pettit and Singer, 1985). We expect tax to have a positive correlation with leverage for large firms, while we expect no such relationship with small firms.

Hypothesis 28: Leverage is positively related with tax.

a. There is no relationship between leverage of small firms and tax.
b. Leverage of large firms is positively related with tax.
c. Leverage of publicly listed firms is positively related with tax.
d. Leverage of privately held firms is positively related with tax.

Hypothesis 29: Debt maturity is positively related with tax.

a. Debt maturity of small firms is positively related with tax.
b. Debt maturity of large firms is positively related with tax.
c. Debt maturity of publicly listed firms is positively related with tax.
d. Debt maturity of privately held firms is positively related with tax.

2.3.3. Financial Environment factors

This section explains the effect of the financial environment on the capital and debt maturity structures of firms. Previous studies focus on firm level variables and the financing decisions of firms. Yet there is a growing literature that focuses on the impact of legal systems and financial institutions on the external financing decisions of firms (Demirguc-Kunt and Maksimovic, 1998; 1999; Fan et al., 2011). The aim of firms, both in developed and developing countries, is to minimize the cost of capital. However, the environment of these firms often varies noticeably from that found in most developed countries. The efficiency and development of the financial

environment affects the availability of external funding and, as such, the capital structure and debt maturity decisions of firms. We will discuss the effect of the financial environment on the external financing decisions of firms. First, we analyze the effect of corruption and the legal system. Then, we will focus on financial institutions and the financial globalization effects on the external financing decisions of firms.

2.3.3.1. Corruption

Corruption is defined as the misuse of public office for private gain (Shleifer and Vishny, 1993). There must be three elements for corruption to exist (Jain, 2001). The first is discretionary power, which is related to regulations (Rose-Ackerman, 1978). This power incorporates the authority to design regulations. as well as to govern them. Therefore, we would expect to find larger discretionary powers, and more corruption, in regulated and controlled economies in contrast to market economies. Additionally, there must be economic rent related to this power. For instance, these rents could be held by a particular group. Finally, there must be a weak legal or judicial system. As a result, there will be a low probability of detection or penalties for wrongdoing (Lee and Ng, 2006). Thus, corruption has an impact on the level of investment, entrepreneurial incentives, and the plan or implementation of rules or regulations in relation to access to resources and assets within a country.

Corruption increases the cost of borrowing both for governments and firms (Ciocchini et al., 2003). If a firm operates in a corrupt country, investors oblige a considerably greater return on debt. Also, corruption can create agency problems.

Managers might choose to involve and accept the projects where they can take bribes instead of analyzing the economic benefits of the projects. Poor legal enforcement makes it easier for managers to divert resources from the firm to their own private accounts, at the expense of bondholders. As managers, government officials also may try to create obstacles for firms to be able to obtain bribes. But all of these attitudes cause waste and increase the transaction costs in the economy. Therefore, the greater the corruption, the higher the cost of borrowing is on the markets, especially in international markets for both the firms and governments of those countries.

As debt markets, corruption has an impact on the equity markets. By using firm level data from 43 countries, Lee and Ng (2004) analyze the correlation between corruption and international corporate values. They find that corruption significantly lessens equity values. They document that firms in more corrupt countries have lower market multiples. They conclude that corruption has significant economic consequences for shareholder value. Since corruption causes a weak regulatory and legal environment, corporate governance may become worse resulting in a boost in the cost of equity.

While corruption has a negative impact on the cost of borrowing, some studies have focused on the benefits of corruption (Leff, 1964; Lui, 1985; Kaufmann and Wei, 2000). They support the efficient grease hypothesis. This hypothesis suggests that firms that pay more bribes should have better access to cheaper credit. Therefore, cost of capital must be lower (Kaufmann and Wei, 2000). It expects a negative relationship between bribes and effective wasted time. Firms that pay bribes can

save time getting the officials to certify compliance with regulations or securing licenses. Some studies have found that some corruption can be enviable (Leff, 1964). First, government officials may become more helpful when they are paid. Additionally, corruption enables entrepreneurs to overcome troublesome regulations.

On the whole, corruption boosts the cost of borrowing (Ciocchini et al., 2003). Since corruption makes the regulatory and legal environment weak, investors expect a greater return on debt to provide credit to firms in corrupt countries. Therefore, the lower the corruption, the better the governance and the more debt firms can have. We expect positive correlation between better governance and leverage for all types of firms. In a more corrupt environment, long-term debt is easier to expropriate, so that short-term debt is expected to be used more often (Fan et al., 2011). Debt maturity increases in the countries with better governance. Therefore, we expect a positive relationship between better governance and debt maturity.

Hypothesis 30: Leverage is positively related with better governance.

a. Leverage of small firms is positively related with better governance.
b. Leverage of large firms is positively related with better governance.
c. Leverage of publicly listed firms is positively related with better governance.
d. Leverage of privately held firms is positively related with better governance.

Hypothesis 31: Debt maturity is positively related with better governance.

a. Debt maturity of small firms is positively related with better governance.
b. Debt maturity of large firms is positively related with better governance.
c. Debt maturity of publicly listed firms is positively related with better governance.
d. Debt maturity of privately held firms is positively related with better governance.

2.3.3.2. Legal System

The legal system has an impact on the financial decisions of firms because finance can be seen as a set of contracts. According to Modigliani and Miller (1958), debt and equity are legal claims on the cash flow of firms. Moreover, Jensen and Meckling (1976) point out that the types of contracts, which are used to address agency problems, are shaped by the statutory laws and the degree to which courts enforce those laws. Thus, the country's contract, company, bankruptcy, and securities laws and the enforcement of these laws fundamentally determines the rights of securities holders and the operation of financial systems. The legal system is important because it provides protection to shareholders and creditors.

Legal systems have significant differences and alter systematically across countries (La Porta et al., 1997). The reason for this systematic difference is its legal origin, which is mainly divided as common law and civil law. Common law is English in origin and is made by judges who have to resolve specific disputes. Moreover, precedents from judicial decisions form common law. The main point of this system

is its judicial independence from both the executive and legislature. Alternatively, civil law includes French, German, and Scandinavian laws that are three major families within the civil law tradition. Civil law originates in Roman law, uses statutes and comprehensive codes as a primary means of ordering legal material, and relies heavily on legal scholars to ascertain and formulate rules (Merryman, 1969).

Legal origin is important as it influences ownership structure, dividend payout, availability and costs of external financing, and market valuations. When compared to French and German civil law countries, investor rights tend to be stronger in Anglo-Saxon common law countries (La Porta et al., 1999). Countries with strong investor rights tend to have lower ownership concentration and increase the willingness of investors to provide financing thereby decreasing the cost of external financing. Moreover, the legal system has also influenced the type of external financing that firms can have access to. Demirguc-Kunt and Maksimovic (1998) find that an effective legal system is important to be able to obtain long-term financing by controlling opportunistic behaviours of corporate insiders. Thus, firms in countries with strong legal systems in which property rights and, in particular, the rights of investors are enforced are likely rely on equity and long-term debt as types of external financing. Consequently, firms in common law countries have greater access to bank and equity financing; whereas, firms in civil law countries are more likely to use debt financing.

Since common law legal systems provide better protection to external investors than civil law legal systems, firms in common law countries can use more outside equity and longer-term debt (Demirguc-Kunt and Maksimovic, 1998; La Porta et al., 1999).

Therefore, we expect that civil law is positively correlated with leverage and short-term debt, while it is negatively related with long-term debt for all types of firms.

Hypothesis 32: Leverage is positively related with civil law.

a. Leverage of small firms is positively related with civil law.
b. Leverage of large firms is positively related with civil law.
c. Leverage of publicly listed firms is positively related with civil law.
d. Leverage of privately held firms is positively related with civil law.

Hypothesis 33: Debt maturity is negatively related with civil law.

a. Debt maturity of small firms is negatively related with civil law.
b. Debt maturity of large firms is negatively related with civil law.
c. Debt maturity of publicly listed firms is negatively related with civil law.
d. Debt maturity of privately held firms is negatively related with civil law.

2.3.3.3. Financial institutions

Financial systems are vital in providing information ex ante about possible investments and capital allocation. They mobilize and pool savings. Therefore, they make trading, diversification, and management of risk easier. After providing financing, they monitor investments and exert corporate governance. They facilitate the exchange of goods and services. These financial functions are provided by all financial systems. Yet how well these financial systems enable those functions varies among countries. Financial development takes place when financial intermediaries and markets improve the effects of information, enforcement, and

transaction costs and do a correspondingly better job at providing those functions (Levine, 2004).

Information acquisition for investment decisions is costly, especially for individuals. It is not possible for individuals to collect, process, and produce information on each possible investment and to assess firms, managers, and market conditions. Therefore, financial intermediaries facilitate and decrease the costs of information acquisition and process, thereby ameliorating the allocation of resources.

By financial intermediaries, we mean banks and stock markets. Banks decrease the costs of acquiring and processing information and thereby improve resource allocation. Without intermediaries, each investor would face large fixed costs associated with evaluating firms, managers and economic conditions (Demirguc-Kunt and Levine, 2008). Therefore, intermediaries have an important role for firms to provide external funding. Previous studies indicate that firms in countries with weak financial systems obtain less external financing (Demirguc-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998). As such, we expect a positive relationship between bank development and leverage and debt maturity.

Banks play a leading role in terms of monitoring borrowers. Banks have economies of scale in gaining information (Diamond, 1984). As a result, they are more likely to use the collected information to discipline borrowers as compared to small investors depending on free rider problems. Hence, we expect developed banking sectors to ease external financing, especially for small firms.

The other financial institution is stock markets. We discuss the impact of the presence of a stock market in a country and then the development of a stock market on available funding. There are two main theoretical arguments that discuss the effect of the existence of a stock market on available funding. The first one is the level effect (Levine, 1997). The existence of a stock market increases liquidity; therefore, it provides sources of funding that can be used for investment. The presence of a stock market also provides improved financial reporting standards and amplifies investor confidence. By providing information transmission, which is especially valuable to creditors, the existence of a stock market makes lending to listed firms less risky (Grossman, 1976; Grossman and Stiglitz, 1980). It boosts the ability of firms to obtain long-term debt. The second theory is the efficiency effect (Greenwood and Jovanovic, 1990 and Obstfeld, 1994). The existence of a stock market, by providing better diversification and increased liquidity, improves investment allocation directed toward higher return, riskier projects. Therefore, the occurrence of a stock market is expected to boost the amount of investment available in a country and to improve the efficiency with which it is allocated.

Most empirical research has focused on the development of a stock market on the external financing decisions of firms (Demirguc-Kunt and Maksimovic, 1996, 1998, 1999; Levine and Zervos, 1998; Rajan and Zingales, 1995). Stock market development is important in the sense that they can improve information quality, monitoring, and corporate control. In larger and more liquid markets, information is cheaper and firms have incentives to provide more information about the firms. Also, liquid stock markets facilitate trading. As a result, liquidity risk also decreases.

Hence, those improvements make more funds available in the financial system to finance firms.

Stock markets may also complement banks. In countries with underdeveloped stock markets, firms' debt level increases, as well as equity, with developments in the stock markets (Demirguc-Kunt and Maksimovic, 1999). Stock market development indicates greater use of equity markets in raising capital and also encourages greater use of bank financing (Demirguc-Kunt and Levine, 1996). Countries with better developed stock markets also have better developed banks and nonfinancial intermediaries. The developments in the stock market actually increase the quantity of bank loans. Demirguc-Kunt and Maksimovic (1996) find a negative relationship between the level of stock market development and the ratios of both long-term and short-term debt to total equity and a positive correlation between bank development and leverage.

For financial institutions, we use three proxies: deposit money bank assets to central bank assets, stock market dummy, and stock market turnover. The ratio of deposit money bank assets to central bank assets is used as a proxy for the financial development or the size of the commercial banks in relation to the central bank. If deposit money banks in a country have a larger role than the central banks in the banking system, it indicates that this country has higher levels of financial development (Beck et al., 2009). Moreover, if the number of commercial banks is high, the competition among banks is high. This competition may end up lowering lending interest rates encouraging firms to borrow. A high number of commercial banks or a financially developed banking system makes more funds available to

firms. We expect positive relationship between deposit money bank assets to central bank assets and leverage and debt maturity for all types of firms.

Hypothesis 34: Leverage is positively related with deposit money bank assets to central bank assets.

a. Leverage of small firms is positively related with deposit money bank assets to central bank assets.
b. Leverage of large firms is positively related with deposit money bank assets to central bank assets.
c. Leverage of publicly listed firms is positively related with deposit money bank assets to central bank assets.
d. Leverage of privately held firms is positively related with deposit money bank assets to central bank assets.

Hypothesis 35: Debt maturity is positively related with deposit money bank assets to central bank assets.

a. Debt maturity of small firms is positively related with deposit money bank assets to central bank assets.
b. Debt maturity of large firms is positively related with deposit money bank assets to central bank assets.
c. Debt maturity of publicly listed firms is positively related with deposit money bank assets to central bank assets.
d. Debt maturity of privately held firms is positively related with deposit money bank assets to central bank assets.

Stock market dummy is included as a proxy for the presence of a stock market or an active stock market. Since some of the countries in our sample do not have either a stock market or an active stock market, we use a dummy variable to analyze the effect of the stock market. As banks, stock markets provide funds to firms. In accordance with the efficiency effect, the existence of a stock market helps to increase the amount of investment available in a country and to improve the efficiency with which it is allocated. Therefore, countries with an active stock market provide more funds into the financial system. As such, we expect a positive correlation between the occurrence of a stock market and leverage and debt maturity for all types of firms.

Hypothesis 36: Leverage is positively related with stock market dummy

a. Leverage of small firms is positively related with stock market dummy.
b. Leverage of large firms is positively related with stock market dummy.
c. Leverage of publicly listed firms is positively related with stock market dummy.
d. Leverage of privately held firms is positively related with stock market dummy.

Hypothesis 37: Debt maturity is positively related with stock market dummy.

a. Debt maturity of small firms is positively related with stock market dummy.
b. Debt maturity of large firms is positively related with stock market dummy.

c. Debt maturity of publicly listed firms is positively related with stock market dummy.
d. Debt maturity of privately held firms is positively related with stock market dummy.

Stock market turnover demonstrates the activity or liquidity of a stock market relative to its size (Beck et al., 2009). The higher the turnover ratio, the more active the market is, while the lower the turnover ratio, the less liquid the market. The liquidity of the stock market is important in the sense that it facilitates trading. As a result of that liquidity, risk reduces. Additionally, high turnover eases the external monitoring of firms by encouraging investors to become informed. A liquid stock market indicates higher use of equity markets in raising capital (Demirguc-Kunt and Levine, 1996). Therefore, firms prefer equity financing over debt financing. As such, we expect an inverse relationship between stock market turnover and leverage and debt maturity for all types of firms.

Hypothesis 38: Leverage is negatively related with stock market turnover

a. Leverage of small firms is negatively related with stock market turnover.
b. Leverage of large firms is negatively related with stock market turnover.
c. Leverage of publicly listed firms is negatively related with stock market turnover.
d. Leverage of privately held firms is negatively related with stock market turnover.

Hypothesis 39: Debt maturity is negatively related with stock market turnover

a. Debt maturity of small firms is negatively related with stock market turnover.
b. Debt maturity of large firms is negatively related with stock market turnover.
c. Debt maturity of publicly listed firms is negatively related with stock market turnover.
d. Debt maturity of privately held firms is negatively related with stock market turnover.

2.3.3.4. Financial Globalization

Financial globalization demonstrates how a country's financial system is engaged with international financial markets. This engagement provides firms from countries with underdeveloped financial systems to gain access to developed financial markets. This engagement has the following benefits. First, firms in a country do not have to bear all the risks related to the economic activities of that country. On the other hand, they have to bear the risks of other countries at the same time. However, both of these type of risks equalize each other as a result of diversification (Stulz, 1999). Additionally, with financial globalization, firms have to meet the disclosure requirements in the global market in order to raise funds. As such, monitoring of management is increased and information and agency costs will be diminished. Moreover, with this integration, domestic financial systems are developed (Fischer, 1998; Mishkin, 2003). As a result, the cost of capital lessens and financing constraints are loosened (Bekaert and Harvey, 2000; Edison and Warnock, 2003;

Lins et al., 2005; Stulz, 1999). Hence, attendance of the global markets signifies lower costs of capital since firms that enter the global capital markets have access to a greater amount of funding opportunities.

We proxy financial globalization with two variables, offshore bank loans to GDP and offshore bank deposits to domestic bank deposits. The ratio of offshore bank loans to GDP is used as a proxy for financial globalization as an increase in offshore loans makes more funding available in the country. Therefore, increases in the availability of funds enables firms to borrow more. We expect a positive relationship between leverage and debt maturity and offshore loans to GDP for all types of firms.

Hypothesis 40: Leverage is positively related with offshore bank loans to GDP.

a. Leverage of small firms is positively related with offshore bank loans to GDP.
b. Leverage of large firms is positively related with offshore bank loans to GDP.
c. Leverage of publicly listed firms is positively related with offshore bank loans to GDP.
d. Leverage of privately held firms is positively related with offshore bank loans to GDP.

Hypothesis 41: Debt maturity is positively related with offshore bank loans to GDP.

a. Debt maturity of small firms is positively related with offshore bank loans to GDP.

b. Debt maturity of large firms is positively related with offshore bank loans to GDP.
c. Debt maturity of publicly listed firms is positively related with offshore bank loans to GDP.
d. Debt maturity of privately held firms is positively related with offshore bank loans to GDP.

The other proxy is the ratio of offshore bank deposits to domestic bank deposits demonstrating the proportion of deposits held by a country's citizens in off-shore banks relative to deposits in domestic banks (Beck et al., 2009). A lack of confidence and trust in the domestic banking system causes households and firms to prefer offshore banks. Increases in offshore bank deposits cause decreases in the available funds of the country. Therefore, limited funding indicates less firm borrowing. However, we include this variable as a proxy for financial globalization. This variable reports the integration of domestic financial systems into the international financial system. Therefore, we would expect a positive correlation between the ratio of offshore bank deposits to domestic bank deposits and leverage and debt maturity.

Hypothesis 42: Leverage is positively related with offshore bank deposits to domestic bank deposits

a. Leverage of small firms is positively related with offshore bank deposits to domestic bank deposits.
b. Leverage of large firms is positively related with offshore bank deposits to domestic bank deposits.

c. Leverage of publicly listed firms is positively related with offshore bank deposits to domestic bank deposits.
d. Leverage of privately held firms is positively related with offshore bank deposits to domestic bank deposits.

Hypothesis 43: Debt maturity is positively related with offshore bank deposits to domestic bank deposits

a. Debt maturity of small firms is positively related with offshore bank deposits to domestic bank deposits.
b. Debt maturity of large firms is positively related with offshore bank deposits to domestic bank deposits.
c. Debt maturity of publicly listed firms is positively related with offshore bank deposits to domestic bank deposits.
d. Debt maturity of privately held firms is positively related with offshore bank deposits to domestic bank deposits.

2.4. Conclusion

In this chapter, we explained the capital structure theories and empirical literature on capital structure and debt maturity and developed the hypotheses that we will test in the empirical Chapters 4, 5 and 6. Capital structure presents firms' combination of debt and equity financing. Capital structure theories, such as trade-off, pecking order, and agency theories, try to explain the choice between these two financing options. In accordance with these theories, we define the determinants and develop the hypotheses. We use three sets of variables: firm level variables, economic environment variables, and financial environment variables.

The previous literature discusses the determinants of capital structure both for developed and developing countries (Titman and Wessels, 1988; Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1999; Booth et al., 2001). Rajan and Zingales (1995) examine capital structure decisions of large listed companies for G-7 countries, while Booth et al. (2001) analyse the financial leverage decisions of listed companies for ten developing countries. However, those studies only include large listed companies. Since most large listed firms from any country are also players in international trade, they can easily access international financial markets and institutions. It could be misleading to accept and generalize the results of these studies for each firm, especially for SMEs. Alternatively, work on SMEs has been limited due to the unavailability of data. Some studies have discussed the capital structure decisions of SMEs for a single country (Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005; Bartholdy and Mateus, 2005) or on a cross country-comparisons (Hall et al., 2004; Daskalakis and Psillaki, 2008; Bartholdy and Mateus, 2008). Hall et al. (2004) examine the cross country differences in SMEs capital structure for eight European countries including Belgium, Germany, Spain, Ireland, Italy, Netherlands, Portugal, and the UK. They explain that the cross country differences in SMEs' capital structure is due to firm specific rather than country specific effects. In accordance with Hall et al. (2004), Daskalakis and Psillaki (2008) support the effect of firm specific factors in the capital structure determinants of SMEs for France and Greece. The firms included in both studies are only small and medium size companies having less than 250 employees. Alternatively, Bartholdy and Mateus (2008) investigate the capital structure decision of SMEs from 1994-2004 for sixteen Western European countries. As opposed to other researchers, they conclude that country specific factors also have an impact on

leverage decisions. They also find that the traditional financing theories (trade-off and pecking order) seem to hold for SMEs in an international setting.

The previous studies on SMEs are mainly focus on the European countries where the economic and financial environment is similar. As a result, it could be misleading to generalize the results of these studies. Only Beck et al. (2008) have examined small firms for a number of both developed and developing countries. However, their data provide limited firm level financial information, which did not allow them to replicate the firm level controls used in capital structure papers. In the light of those, we are going to investigate the capital structure and debt maturity decisions of firms specifically for SMEs.

In Chapter 4, we will discuss whether leverage and debt maturity levels alter according to the size and listing status of firms. We will also analyse the impact of the presence of a stock market on the leverage and maturity levels of firms. In Chapter 5, we will investigate the determinants of capital structure in developing countries. We will analyze whether capital structure theories are portable to small firms and whether the economic and financial environment of a country has an effect on the capital structure decisions of firms. In Chapter 6, we will look at the answers to these questions in regard to the debt maturity decisions of firms.

In the next chapter, we present the sources of data that we use to collect our information. We discuss the methodology and the empirical models that we apply. The countries that we include in the sample are developing countries from different regions. The countries included have different levels of financial development.

Therefore, we can observe more accurately whether firm-specific or economic and financial environment factors have an impact on the capital structure and debt maturity decisions of firms.

CHAPTER 3

DATA AND METHODOLOGY

3.1. Introduction

The main focus of this chapter is to provide information about the data and methodology that we apply for the empirical Chapters 4, 5, and 6. We use various databases including the World Bank Enterprise Survey for firm level variables, the World Development Indicators for macroeconomic variables, the Worldwide Governance Indicators, and the Financial Development and Structure database for financial environment variables. By combining these different databases, we try to present the leverage and debt maturity levels and explain the determinants of capital structures and debt maturity for firms in developing countries. We have a huge dataset containing 24 developing countries from five regions from 1999-2004. In total, we have 10,839 firms with up to three years of data for a total of 27,738 observations. 48% (41%) of the observations are from the small (medium) firms, while only 11% is for large firms.

In this chapter, we define variables that we will use in the empirical chapters. We have four main sets of variables: leverage and debt maturity, firm level variables, economic environment variables, and financial environment variables. The firm level variables include asset tangibility, profitability, and size. The economic environment variables are included to proxy the economic environment of the country. Those variables are GDP per capita, growth, inflation, interest, and tax. Additionally, the financial environment variables report the financial environment of the country. The variables are corruption, legal system, financial institutions, and financial globalization.

This chapter also presents the empirical model that we will apply for the empirical chapters and the methodology that we will use. Since we have different firms among various years, we elect to apply static panel data analysis. We estimate our empirical models used in Chapter 5 and 6 by applying the fixed effects method based on the results of Hausman tests. Unlike recent studies, we could not apply the dynamic model due to the unavailability of the data. This is one of the limitations of this thesis.

The remainder of this chapter is organized as follows. Section 3.2 explains the data that we use to collect the variables. In the Section 3.3, we describe the variables that we use. Section 3.4 presents the correlation coefficient of the variables. In Section 3.5, we discuss the methodology that we apply to estimate our models. Section 3.6 demonstrates the model that we will apply in the Chapters 4, 5, and 6. In the last section, we provide our chapter conclusions.

3.2. Data

The dataset used in this thesis is gathered from various databases. The data for firm level variables are collected from the World Bank Enterprise Survey, economic environment variables are derived from World Development Indicators, and financial environment variables are from Worldwide Governance Indicators and the Financial Development and Structure database (Beck et al., 2009). Legal origin of the countries is collected from La Porta et al. (1998, 1999). In our dataset, we include 24 developing countries from 5 different regions including Ethiopia, Malawi, South Africa, Tanzania, Zambia from the African region; Cambodia, Indonesia, and the Philippines from the East Asia and Pacific region; Brazil, Chile,

Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, and Peru from the Latin America and Caribbean region; Morocco, Oman, and the Syrian Arab Republic from the Middle East and North African region; and Bangladesh, India, Pakistan, and Sri Lanka from the South Asian region. The dataset includes 15,201 firms from the above mentioned countries for up to three years. Firms are omitted from the sample if they do not have both total liabilities and total assets. We also exclude firms if their leverage ratio is higher than one.[3] Therefore, we end up with 10,839 companies and a total of 27,738 observations. Firm level variables in the database are based on local currencies, so we convert them to U.S. dollars using the rate from the World Development Indicators.

We use the 2002 version of the survey because it provides information about balance sheet items such as fixed assets, current assets, total liabilities including short-term and long-term debt, and equity-share capital. It also includes sales and expenses in local currency units for three years. An important feature of the survey is that it covers small and medium size enterprises. The survey includes three types of firms. Firms are defined as small if they have less than 50 employees. Medium firms employ 51 to 500 employees, while large firms are defined as those with more than 500 employees. Only 20% of the database includes large companies and 80% of it contains small and medium firms in equal proportions. Therefore, most of the firms are privately held companies.

A distinguishing feature of the World Bank Enterprise Survey is its coverage of small and medium enterprises. By using this database, we examine the leverage and

[3] If a firm's leverage ratio is higher than one, it means that the firm goes bankrupt. That's why we excluded firms which have already gone bankrupt.

maturity levels of firms and determinants of the capital structure and debt maturity decisions of firms. To our knowledge, this is the first study that uses the Enterprise Survey for that purpose. For instance, Rajan and Zingales (1995) use the Global Vantage database that contains accounting data for the largest listed companies in G-7 countries, while Booth et al (2001) use the International Financial Corporation (IFC) database that includes abbreviated balance sheets and income statements for the largest companies in ten developing countries. Both papers only consider large companies. Beck et al. (2008) focus on small firms and use the World Business Environment Survey (WBES) 1999, which had limited firm level financial information. They investigate flows of external finance as a proportion of investment expenditures. They use the total amount of internal and external resources used in a particular year rather than the ratio of external total financing to total assets. In contrast, our rich database allows us to investigate whether the leverage and debt maturity levels of firms are different based on the size and listing status of firms and whether their capital structure and debt maturity decisions are affected by the same theoretical determinants of capital structures and debt maturity used in developed countries.

The data for our economic environment variables, GDP per capita, growth of GDP, inflation, interest rate, and tax rates, are collected from World Development Indicators (April 2008) by World Bank. We use annual data for macroeconomic variables since our firm level variables are end of the year accounting data and the macroeconomic variables are based on the U.S. dollars.

For financial environment variables, we use two databases: the Worldwide Governance Indicators and Financial Development and Structure database. We use Worldwide Governance Indicators 1996-2008 by Kaufmann et al. (2009) for corruption of countries data. The corruption indicator is measured in units ranging from -2.5 to 2.5. The higher values correspond to better governance and less corruption in the country. Since the survey does not include the years 1999-2001, we take the averages for the years 1998-2000 for 1999 and 2000-2002 for 2001.

We use legal origin data from La Porta et al. (1998, 1999) to proxy for the legal system. The data for financial institutions and financial globalization is collected from the Financial Development and Structure database (Beck et al., 2009). As a financial globalization proxy, we use the ratio of offshore bank loans relative to GDP and the ratio of offshore bank deposits to domestic bank deposits as they are the only variables available for all of the countries in the dataset.

Thus, our sample includes 27,738 observations that contain 48% of small firms, 41% of medium size firms, and 11% of large firms. For privately held and listed firms, the total number of observations in the sample is 25,729 including 92% of private and 8% of publicly listed companies.

3.3. Variables

In this section, we define the variables that we used in our empirical models. First, we explain leverage and debt maturity. Additionally, we present the firm level variables, asset tangibility, profitability, and size, and define them. After the firm level variables, we focus on the economic environment of a country by explaining

GDP per capita, growth, inflation, interest, and tax variables. Finally, we consider the financial environment of a country by discussing corruption, the legal system, financial institutions, and financial globalization.

3.3.1. Leverage

We define leverage *(Leverage)* as total liabilities to total assets (Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1996; Booth et al., 2001; Daskalakis and Psillaki, 2008). This ratio can be seen as a proxy for what is left for shareholders in the case of liquidation. The data for leverage is collected from the Enterprise Survey Questions 81 and 82.

3.3.2. Debt maturity

We use three proxies for debt maturity: long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt. Long-term debt to total assets *(LTD/TA)* is defined as long-term liabilities divided by total assets, while short-term debt *(STD/TA)* is short-term liabilities to total assets (Demirguc-Kunt and Maksimovic, 1999). Long-term debt to total debt is expressed as long-term liabilities to total liabilities (Demirguc-Kunt and Maksimovic, 1999). Maturity of debt depends upon the riskiness of the firm. Lenders do not prefer to offer long-term debt if the firms carry high risk.

3.3.3. Firm level variables

We use three different ratios to proxy for firm level variables: asset tangibility, profitability, and size.

3.3.3.1. Tangibility

Asset tangibility *(Tangibility)* is defined as total assets minus current assets (fixed assets) divided by total assets. (Rajan and Zingales, 1995; Booth et al. 2001) (Survey Question 81).

3.3.3.2. Profitability

Profitability *(Profitability)* is calculated as earnings before interest and tax divided by total assets (Survey Questions 74 and 81).[4]

3.3.3.3. Size

We measure size in three different ways. First, the number of employees the firm has is used to define the size (Survey Question 62). A firm is classified as small if it has less than 50 employees, medium size if it has between 51 and 500 employees, and large if it has more than 500 employees. Size is a dummy variable for small and large firms (Beck et al., 2008). The second size measure used is calculated as the logarithm of total sales (Survey Question 74) (Rajan and Zingales, 1995; Booth et al., 2001). The last measurement for size is the natural logarithm of total assets (Harvey et al., 2004).

3.3.4. Economic environment variables

We use five macroeconomic variables to proxy the economic environment of a country: GDP per capita, growth rate of GDP, inflation rate, interest rate, and tax rate (Demirguc-Kunt and Maksimovic, 1996, 1999).

[4]Earnings is calculated as total sales minus the sum of direct raw material costs, consumption of energy, manpower costs, interest charges, and financial fees, other costs.

3.3.4.1. GDP per capita

GDP per capita *(GDP/Cap)* is the gross domestic product per capita of the country.

3.3.4.2. Growth

The Growth *(Growth)* is the GDP growth rate of the country. It is included as a measure of the growth opportunities available to firms in the economy.

3.3.4.3. Inflation

Inflation *(Inflation)* is the inflation rate of the country. Inflation is measured based on the GDP deflator, which is the ratio of GDP in local currency to GDP in constant local currency.

3.3.4.4. Interest rate

Interest rate *(Interest)* is the lending interest rate of the country.

3.3.4.5. Tax

Tax variable *(Tax)* is the country's highest marginal corporate tax rate (Bartholdy and Mateus, 2008).

3.3.5. Financial Environment variables

We use four variables to proxy the financial environment of a country including corruption, legal system, financial institutions, and financial globalization.

3.3.5.1. Corruption

Corruption *(Corruption)* is measured in units ranging from about -2.5 to 2.5. Higher values mean better governance and, therefore, lower levels of corruption. Different survey questions are combined to measure corruption, so the range of questions includes the frequency of "additional payments to get things done" to the effects of corruption on the business environment, to measuring "grand corruption" in the political arena or in the tendency elite forms to engage in "state capture" (Kaufmann et al., 2009).

3.3.5.2. Legal system

For legal system, we use dummy variable for legal origin (La Porta et al., 1998). If the legal origin of a country is based on the civil law, it is equal to one, and zero otherwise.

3.3.5.3 Financial institutions

Three variables, deposit money bank assets to central bank assets, stock market dummy and stock market turnover are used to proxy the financial institutional environment of a country.

3.3.5.3.1. Deposit money bank assets to central bank assets

Deposit money bank assets to central bank assets *(Dbacba)* is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets (Beck et al., 2009).

3.3.5.3.2. Stock market dummy

Stock market dummy *(Stockmrk)* is a dummy variable used to proxy for the presence of a stock market or an active stock market. If a country has a stock market or an active stock market, it is equal to one and zero otherwise.

3.3.5.3.3. Stock market turnover

Stock market turnover *(Turnover)* is the ratio of the value of total shares traded to market capitalization (Beck et al., 2009).

3.3.5.4 Financial globalization

We use two variables, offshore bank loans to GDP and offshore bank deposits to domestic bank deposits, as a proxy for financial globalization of a country.

3.3.5.4.1. Offshore bank loans to GDP

Offshore bank loans to GDP *(Nrbloan)* is the ratio of offshore bank loans relative to GDP (Beck et al., 2009).

3.3.5.4.2. Offshore bank deposits to domestic bank deposits

Offshore bank deposits to domestic bank deposits *(Offdep)* is the ratio of offshore bank deposits to domestic bank deposits indicating the proportion of deposits held by a country's citizens in off-shore banks relative to deposits in domestic banks (Beck et al., 2009).

3.4. Correlation coefficients

Table 3.1 presents the correlation coefficients among variables. Panel A reports the correlations among firm level variables. Panel B is provides economic environment data, while Panel C illustrates the financial environment variables. Panel D presents the results for economic and financial environment variables. Firm level variables are not highly correlated among each other and among the variables for economic and financial environment. In contrast, some high correlation exists among the macroeconomic variables. The correlation between GDP per capita and tax is -71.87%, while the correlation between interest and tax is -61.04%. The variables for financial environment are not highly correlated, except for civil and turnover. The relation between civil and turnover is -63.22%. There are some high correlations between the variables for the economic and financial environment. GDP per capita is positively correlated (69.34) with corruption. Interest and deposit money bank assets to central bank assets are negatively correlated at 69.17%. Tax is also highly related with the civil law legal system dummy at -68.57%, deposit money bank assets to central bank assets at 73.86%, and stock market turnover with 64.43%. There some correlation exists among the variables. To assess the problem of multicollinearity, a variance inflation factor (VIF) test is performed among the independent variables. This analysis is useful to determine which independent variables may be involved in multicollinearities (Maddala, 1992). Table 3.1 Panel E presents the results for the VIF analysis. The VIF values for all variables are lower than 10, so collinearity is not a problem for our analysis. Dependent variables, leverage, long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt are not highly correlated to firm level variables, economic, and financial environment variables.

Table 3.1 Correlation Matrix among variables

This table reports the Pearson correlation statistics for firm level, macroeconomic, and financial environment variables. Leverage is the ratio of total liabilities to total assets. LTD/TA is the ratio of long-term liabilities to total assets. STD/TA is the ratio of short-term liabilities to total assets. LTD/TD is the ratio of long-term liabilities to total liabilities. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one, and zero otherwise. Large takes a value of one if the firm has more than 500 employees, and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on the GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems, and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stckmrk is a dummy variable equal to one if the country has an active stock market; and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. *** indicates significance at the 1% level, ** indicates significance at the 5% level and * indicates significance at the 10% level.

Panel A: Correlation Matrix of Firm level variables

	Leverage	LTD/TA	STD/TA	LTD/TD	Tangibility	Profitability	Small	Large
Leverage	1.0000							
LTD/TA	0.5651***	1.0000						
STD/TA	0.7486***	-0.1205***	1.0000					
LTD/TD	0.1176***	0.7688***	-0.5090***	1.0000				
Tangibility	-0.2315***	0.0244***	-0.3029***	0.1666***	1.0000			
Profitability	-0.0349***	-0.0310***	-0.0177***	-0.0232***	-0.0189***	1.0000		
Small	-0.2734***	-0.2127***	-0.1617***	-0.1163***	0.1037***	-0.0556***	1.0000	
Large	0.1339***	0.1309***	0.0601***	0.0909***	-0.0487***	0.0557***	-0.3367***	1.0000

Panel B: Correlation matrix of Economic Environment variables

	GDP/Cap	Growth	Inflation	Interest	Tax
GDP/Cap	1.0000				
Growth	-0.5160***	1.0000			
Inflation	0.0376***	-0.3670***	1.0000		
Interest	0.4161***	-0.4489***	0.2385***	1.0000	
Tax	-0.7187***	0.4618***	0.0061	-0.6104***	1.0000

Panel C: Correlation matrix of Financial Environment variables

	Corruption	Civil	Dbacba	Stockmrk	Turnover	Nrbloan	Offdep
Corruption	1.0000						
Civil	0.2109***	1.0000					
Dbacba	-0.4458***	-0.3970***	1.0000				
Stockmrk	0.1874***	-0.2519***	0.0286***	1.0000			
Turnover	-0.2690***	-0.6322***	0.2558***	0.2299***	1.0000		
Nrbloan	-0.0114*	0.2947***	0.3330***	0.0641***	-0.1139***	1.0000	
Offdep	-0.2913***	0.0533***	0.0144**	-0.0669***	-0.0706***	0.1202***	1.0000

Panel D: Correlation Matrix for Economic and Financial Environment variables

	GDP/Cap	Growth	Inflation	Interest	Tax	Corruption	Civil	Dbacba	Stockmrk	Turnover	Nrbloan	Offdep
GDP/Cap	1.0000											
Growth	-0.5160***	1.0000										
Inflation	0.0376***	-0.3670***	1.0000									
Interest	0.4161***	-0.4489***	0.2385***	1.0000								
Tax	-0.7187***	0.4618***	0.0061	-0.6104***	1.0000							
Corruption	0.6934***	-0.0945***	-0.1867***	0.0595***	-0.5245***	1.0000						
Civil	0.4898***	-0.4489***	-0.1534***	0.2786***	-0.6857***	0.2109***	1.0000					
Dbacba	-0.5006***	0.4313***	-0.1694***	-0.6917***	0.7386***	-0.4458***	-0.3970***	1.0000				
Stockmrk	0.3273***	-0.1315***	0.1569***	0.1052***	0.0656***	0.1874***	-0.2519***	0.0286***	1.0000			
Turnover	-0.3952***	0.3965***	0.2168***	-0.2592***	0.6443***	-0.2690***	-0.6322***	0.2558***	0.2299***	1.0000		
Nrbloan	0.1613***	-0.2539***	0.0583***	-0.4852***	0.1264***	-0.0114*	0.2947***	0.3330***	0.0641***	-0.1139***	1.0000	
Offdep	-0.0433***	-0.1961***	0.2027***	0.0061	0.0153**	-0.2913***	0.0533***	0.0144***	-0.0669***	-0.0706***	0.1202***	1.0000

Panel E: VIF test

	VIF
Tangibility	1.08
Profitability	1.03
Small	1.25
Large	1.15
GDP/Cap	7.71
Growth	2.79
Inflation	1.76
Interest	6.44
Tax	9.04
Corruption	6.12
Civil	3.99
Dbacba	5.41
Stockmrk	1.82
Turnover	3.18
Nrbloan	3.57
Offdep	1.37

3.5. Methodology[5]

In this section, we discuss the methodology that we apply to estimate our models in the empirical Chapters 4, 5, and 6. In Chapter 4, we present the summary statistics of variables for each country. Since our sample includes 24 countries, we first investigate whether the differences among variables in each country are statistically significant by applying an F-test. Then, we examine whether the leverage and debt maturity levels show differences based on the size of the firm or listing status. Moreover, we will analyse the differences in levels for firms in countries with and without a stock market. We will apply a t-test to see whether the differences in levels are statistically significant. By applying these significance tests, we can verify the truth or falsify our hypothesis (Gujarati, 1995).

For Chapters 5 and 6, we apply panel data analysis. We have 10,839 companies over

[5] Most of this section is based on Baltagi 2008.

two or three year time periods across 24 countries. Since the time period for each firm is different, we have an unbalanced panel. We apply the panel data analysis as this gives us the opportunity to analyze our firm level data across countries and time. Panel data analysis provides regression analysis with both spatial and temporal dimension. The spatial dimension presents to a set of cross section observations, such as countries and firms. In contrast, temporal dimension relates to periodic observations of the variables describing these cross sectional units over a particular time period. Therefore, panel data refers to the pooling of observations on a cross section of firms over several time periods. Panel data proposes that firms are heterogeneous, whereas, cross-section and time series data cannot control for this individual heterogeneity that may cause biased results. Therefore, panel data can be considered a better method to account for the heterogeneity of firms. Since panel data combines cross-section and time series models within the same model, it provides more informative data, more variability, less collinearity among the variables, more degrees of freedom, and more efficiency. When compared to cross-section data, panel data improves the accuracy of econometric estimates by diminishing collinearity among the explanatory variables. Additionally, time series models have problems with multicollinearity. However, in the panel data, since more variables were present in a cross section basis we added, this problem is less likely to occur. By adding more informative data, panel data provides more reliable parameter estimates. Furthermore, panel data is better able to study the dynamic of adjustment when compared to other models. For instance, it is not possible with cross-section data to observe how the firms' capital structures change during financial development. Panel data enables us to relate those changes from one point in time to other changes at another point in time. (Baltagi, 2008)

The most widely used panel data models are the pooled regression model, the fixed effects model, and the random effects model. The pooled regression model is the simplest model and it proposes constant coefficients. This means that intercepts and slopes are the same for all the firms and periods. This method implies that estimated cross section is identical and it is better under the hypothesis that the data set is a priori homogeneous (e.g., if we have a sample of only high income countries) (Asteriou and Hall, 2007).

The fixed effects model is more general than the pooled model, in the sense that the fixed effects enable us to analyse the differences from one country/firm and/or period to another. The model permits for different intercepts for each country/firm and/or period. The fixed effects estimator is also known as the least-square dummy variables estimator. It contains a dummy variable for each group; therefore, it permits for different constants for each group. Thus the model is:

$$D_{i,t}/V_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \qquad (3.1)$$

$i = 1, 2, ...,10,839$; $t = 1999,\ldots,2004$

Where $D_{i,t}/V_{i,t}$ is the leverage or one of the debt maturity ratios for the i^{th} firm at time t. $F_{i,j,t}$ reports the firm level variables, while $E_{i,k,t}$ is the economic environment variables, and $Fin_{i,l,t}$ represents the financial environment variables.

To decide whether the fixed effects method is applicable or not, we should apply a test to see whether fixed effects (i.e., different constants for each group) should be included in the model. To do so, a standard F-test can be used to check fixed effects against the pooled method. The null hypothesis is that all the constants are the same (homogeneity), and if the null hypothesis cannot be rejected, the pooled method is applicable.

$H_0 = \alpha_1 = \alpha_2 = \alpha_3 = \ldots\ldots\ldots = \alpha_6$

The F statistic is:

$$F = \frac{(R^2_{FE} - R^2_P)/(N-1)}{(1-R^2_{FE})/(NT-N-k)} \sim F(N-1, NT-N-k) \qquad (3.2)$$

where R^2_{FE} is the coefficient of determination of the fixed effects model and R^2_P is the coefficient of determination of the pooled model. If F-statistical is bigger than the F-critical, then we reject the null hypothesis (Asteriou and Hall, 2007).

We use period fixed effects rather than country- or firm-specific fixed effects. First, as in Booth et al. (2001), we try to include the country fixed effects since we have 24 countries in the sample. When we include both macroeconomic variables and country dummies, the macroeconomic variables become insignificant. The country dummies take the impact of the macroeconomic variables as Lemmon et al. (2008) predicted.[6] Therefore, we omit the country dummies since the macroeconomic variables can show the differentiation among countries. We could not apply firm-specific fixed effects either since the firms included in the sample have observations

[6] Please see the Appendices Tables 2-4 for the results for country fixed effects.

for only two or three years. The firm fixed effect takes the effect of firm specific variables. Lemmon et al. (2008) support these arguments. They conclude "the majority of variation in leverage in panel of firms is time invariant." In addition, including firm or country specific fixed effects increases the model fit, but at a cost of fewer degrees of freedom and a loss of generality of the model. Hence, too many dummy variables prevent us from reaching a general conclusion. That's why we use period fixed effects.

The loss of degrees of freedom can be avoided by using a random effects model. Unlike the fixed effects model, the random effects model assumes that the intercept is a random variable. This model explains differences in $D_{i,t}/V_{i,t}$ across firms as omitted variables captured by a random error term. The model is:

$$D_{i,t}/V_{i,t} = \alpha + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + u_t + \varepsilon_{i,t} \quad (3.3)$$

$i = 1, 2, ...,10{,}839$; $t = 1999,\ldots,2004$

The difference between the fixed effects and random effects method is that the random effects method handles the intercepts for each section not as fixed, but as random variables. The random effects model contains two types of random disturbances u_t and $\varepsilon_{i,t}$, such as firm specific and time specific. The time specific effects are considered as random over repeated samples, while in the fixed effects model, these effects are considered as fixed. Thus, the random effects model contains two types of random disturbances, whereas the fixed effect model is just one which is time specific.

When compared to the fixed effects model, the random effects model has fewer parameters to estimate. The random effects model allows for additional explanatory variables, which have equal value for all observations within a group (e.g., it permits the use of dummies). Alternatively, one disadvantage of the random effects model is that it requires specific assumptions about the distribution of the random component. Also, if the unobserved group-specific effects are correlated with the explanatory variables, then the estimates will be biased and inconsistent. Overall, the difference between the fixed effects and random effects models is that the fixed effects model supposes that each period varies in its intercept term, whereas the random effects model assumes that each period differs in its error term (Asteriou and Hall, 2007).

To decide which method to use, we apply the Hausman test. The Hausman test is a specification test proposed by Hausman (1978) which is based on the correlations between the regressors and the unobserved or individual effect. The Hausman test is important to test the assumption of whether unobserved and observed explanatory variables are correlated. The fixed effect estimator is consistent even when the estimators are correlated with the individual effect. If they are correlated, the fixed effect is consistent, but the random effect is not consistent. Therefore, we actually test in the null hypothesis (H_0) that the random effects are consistent and efficient, versus alternative hypothesis (H_1) that the random effects are inconsistent (as the fixed effects will be always consistent). The Hausman test uses the following test statistic:

$$H = (\beta_{FE} - \beta_{RE})'[Var(\beta_{FE}) - Var(\beta_{RE})]^{-1}(\beta_{FE} - \beta_{RE}) \sim X^2(k) \qquad (3.4)$$

If the Hausman statistic is small, we cannot reject the null hypothesis; therefore, the random effects model is consistent. On the other hand, if it is large, the fixed effects estimator is more appropriate.

Table 3.2 Hausman test

Leverage for Chapter 5			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	841.37	15.00	0.00
LTD/TA for Chapter 6			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	348.44	15.00	0.00
STD/TA for Chapter 6			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1021.40	15.00	0.00
LTD/TD for Chapter 6			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	676.05	16.00	0.00

Table 3.2 presents the results for the Hausman test. We apply the test for each model that we use in Chapters 5 and 6. According to the test, we reject the null hypothesis that the random effecst model is consistent in each case. Therefore, in accordance with our test results, we apply the fixed effects model.

The model that we apply is the static panel model. But most of the recent studies apply the dynamic models. For instance, Antoniou et al. (2006) use the dynamic model to estimate debt maturity due to the presence of a substantial autocorrelation in the residuals. They conclude that current leverage or maturity may depend upon the past leverage or maturity; therefore, they propose that the dynamic model is

more appropriate than static. Due to data limitations, as we have only two or three years of firm level observations, we could not apply the dynamic model. As such, this is one of the limitations of this thesis.

3.6. Empirical Models

In this section, we explain the models that we use to examine our research questions. In Chapter 4, we investigate the significance of differences in leverage and the debt maturity levels of firms. In Chapter 5, we analyze the effect of determinants of capital structure on leverage decisions of firms. In Chapter 6, using the same determinants, we examine the debt maturity structure decisions of firms including long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt.

The purpose of Chapter 4 is to analyse the leverage and debt maturity levels of firms in developing countries. First, we will apply an F-test to examine whether the differences in variables among the countries are statistically significant. Then, by conducting a t-test, we will compare the significance of differences in leverage, debt maturity, tangibility, and profitability levels of small and large firms. We will do the same comparison for privately held and listed companies. Finally, we will examine the effect of a stock market on the leverage and maturity decisions of firms, including small vs. large firms. We will conduct a t-test to examine the significance of the differences for the firms in countries with and without a stock market.

The purpose of Chapter 5 is to investigate the determinants of capital structure in developing countries. The basic empirical model that we apply in Chapter 5 of this

study is a regression of the measure of firm's total liabilities to total assets (leverage) against the firm's tangibility of assets, profitability, and size, macroeconomic factors including GDP/Cap, growth, inflation, interest, and tax and financial environment factors such as corruption, legal system, financial institutions, and financial globalization. In Chapter 6, we examine the impact of firm level, the economic environment, and the financial environment on the debt maturity decisions of firms. This refers to:

Leverage/Debt maturity = f(firm level variables, economic environment factors, financial environment factors)

The functional form of our model is as follows:

$$D_{i,t}/V_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \quad (3.5)$$

$i = 1, 2, ...,10{,}839$; $t = 1999,\ldots,2004$

For the Chapter 5, $D_{i,t}/V_{i,t}$ presents the leverage as total liabilities to total assets for the i^{th} firm at time t. $F_{i,j,t}$ provides the j^{th} firm level variables such as asset tangibility, profitability, and size, while $E_{i,k,t}$ represents the k^{th} economic environment variables including GDP per capita, growth, inflation, interest, and tax at time t. $Fin_{i,l,t}$ presents the l^{th} financial environment variables, which are corruption, legal system, deposit money bank assets to central bank assets, stock market dummy, stock market turnover, offshore bank deposits to GDP, and offshore bank deposits to domestic bank deposits at time t.

For the Chapter 6, we apply the same model by changing the dependent variable. $D_{i,t}/V_{i,t}$ presents the debt maturity for the i^{th} firm at time t. For debt maturity, we use

three proxies, such as long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt. We use the same independent variables that we apply for empirical Chapter 5. Only when we use long-term debt to total debt as the dependent variable, we also include leverage as one of the firm-level variables. $F_{i,j,t}$ demonstrates the firm level variables, $E_{i,k,t}$ represents the economic environment variables, and $Fin_{i,l,t}$ presents the financial environment variables at time t.

In both Chapters 5 and 6, we first estimate the above equations for leverage and debt maturity. Then, we divide the sample based on the size of a firm as small, medium, and large. We repeat each estimation for each group. After that, we test the robustness of our results by using different definitions of size, such as logarithm of sales and logarithm of assets. Finally, we distinguish firms based on their listing status and estimate the above models for privately held and publicly listed firms.

3.7. Conclusion

In this chapter, we explained the data and methodology that we apply in the thesis. First, we discuss our data sources and define the variables that we generate. We gathered the variables from various databases, the World Bank Enterprise Survey, World Development Indicators, Aggregate Governance Indicators, and Financial Development and Structure Database. In the sample, we have 10,839 companies with a total of 27,738 observations that contain 48% of small firms, 41% of medium size enterprises, and 11% of large firms. Moreover, 92% of the firms are private companies, while 8% are listed firms.

We are using four sets of variables. The first is leverage and debt maturity. The second group is firm level variables including asset tangibility, profitability, and size. The economic environment variables are GDP per capita, growth, inflation, interest, and tax. The financial environment variables are corruption, legal system, financial institutions, and financial globalization.

Then, we examined the methodology to find the appropriate one for our analysis. Unlike recent studies, we will use the static model and apply the fixed effects method. We could not apply the dynamic model due to the unavailability of data. Finally, based on the appropriate method that use, we constructed the models for Chapters 5 and 6.

In Chapter 4, we will analyse the leverage and debt maturity levels of firms in developing countries. We will examine whether the leverage and maturity levels indicate differences based on the size and listing status. Moreover, we will investigate the impact of the presence of a stock market on the leverage and maturity levels of firms. In Chapter 5, we will discuss the determinants of capital structure by analysing the effects of firm level, economic, and financial environment variables on leverage. We will employ robustness tests and additional analysis to investigate the determinants of leverage for different types of firms. In Chapter 6, we will examine the determinants of the debt maturity structure by using long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt and demonstrate the effect of firm level, economic, and financial environment variables on them. We also apply additional analysis to examine the differences between small and large firms and privately held and publicly listed companies.

CHAPTER 4

STYLIZED FACTS: LEVERAGE AND DEBT MATURITY IN DEVELOPING COUNTRIES

4.1. Introduction

The purpose of this chapter is to provide an in depth discussion about the databases that we use and provide the preliminary analysis on leverage, debt maturity, and the determinants of capital structure across countries. The distinguishing feature of the World Bank Enterprise Survey is its coverage for small and medium enterprises. By using this database, we analyze the impact of size on the leverage and debt maturity levels of firms and make comparisons with those of developed countries. Since this is the first thesis to use the World Bank Enterprise Survey, the discussion of the dataset is an original empirical contribution. In this chapter, we also explain other data sources in addition to the World Bank Enterprise Survey. As we previously mentioned in Chapter 3, in addition to the World Bank Enterprise Survey, we also use the World Development Indicators for the economic environment variables and the Worldwide Governance Indicators and Financial Development Structure database for the financial environment variables. Both the World Development Indicators and the Financial Development Structure database are provided by World Bank, whereas the Worldwide Governance Indicators are combined by using various data sources by Kaufmann et al. (2009). By merging those different databases, we create a huge dataset containing 24 developing countries from five regions. In total, we have 10,839 firms up to three years. As a result, we have a total of 27,738 observations. 48% (41%) of the observations are from small (medium) firms, while only 11% is large firms.

Additionally, we present the summary statistics of leverage and debt maturity, firm-level variables, economic environment, and financial environment variables for each country in the sample. Since our sample includes 24 different countries, we examine

whether there is a difference in the leverage and debt maturity, firm-level determinants, and economic and financial environments. To see whether these differences among countries are statistically significant, we apply an F-test.

Moreover, we investigate the impact of size on the leverage and debt maturity decisions of firms in developing countries. The previous literature documents the leverage and debt maturity levels of large listed companies in both developed and developing countries (Rajan and Zingales, 1995; Booth et al., 2001). There are few studies that focus on the leverage and debt maturity decisions of small companies (Michaelas et al., 1999; Hall et al., 2004; Sogorb-Mira, 2005; Daskalakis and Psillaki, 2008). However, the main focus of all studies for small companies is based on the European countries. Since the economic and financial environments of developing countries are not similar to European countries, it could be misleading to generalize their results for all countries. Therefore, by using the World Bank Enterprise Survey, we find the leverage and debt maturity levels of small and privately held firms. To our knowledge, this is the first thesis to use this database to present the debt and maturity levels of small firms in developing countries. We compare the averages of leverage and debt maturity levels, as well as firm level determinants of small and large firms. Furthermore, we investigate the leverage and maturity levels of privately held and publicly listed companies. Finally, we examine how the presence of a stock market affects the external financing decisions of firms. We compare the leverage and debt maturity levels of small and large firms in countries with and without a stock market and investigate whether the differences in leverage and maturity levels are statistically significant by conducting a univariate analysis. Hence, we are looking to answer the following questions:

- Are the leverage and debt maturity levels of small and large firms different in developing countries?
- Do the leverage and debt maturity levels show differences between privately held and listed companies in developing countries?
- Does the presence of a stock market have an impact on the leverage and debt maturity levels of firms?

By using the World Bank Enterprise survey data, we find that small firms are less levered and have shorter maturity when compared to large firms in developing countries. Firms in a country with a stock market can use more leverage and longer debt maturity than firms in a country without a stock market. This difference is higher, especially for small firms. In contrast, the average leverage of large firms in countries with an active stock market is close to the average leverage in developed countries. Therefore, the presence of an active stock market is important for the external financing of firms in developing countries.

The remainder of this chapter is organized as follows. Section 4.2 explains the databases that we use to collect the variables. Section 4.3 presents the descriptive statistics for each individual country, while Section 4.4 provides the stylized facts. Section 4.5 concludes the chapter.

4.2. Data Sources

The dataset used in the thesis is gathered from various databases. The data for firm level variables are collected from the World Bank Enterprise Survey, economic environment variables are from the World Development Indicators and the financial

environment variables are from the Worldwide Governance Indicators and Financial Development and Structure database. In addition to that, we use legal origin data from La Porta et al. (1998, 1999) to proxy the legal system. In our dataset, we include 24 developing countries from 5 different regions including Ethiopia, Malawi, South Africa, Tanzania, and Zambia from the African region; Cambodia, Indonesia, and the Philippines from the East Asia and Pacific region; Brazil, Chile, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, and Peru from the Latin America and Caribbean region; Morocco, Oman, and the Syrian Arab Republic from the Middle East and North African region; as well as Bangladesh, India, Pakistan, and Sri Lanka the from South Asian region. The sample includes 10,839 firms and 27,738 observations. In the following section, we will first explain the World Bank Enterprise Survey. Then, in Section 4.2.2, we will discuss the World Development Indicators. Section 4.2.3 explains the Worldwide Governance Indicators by Kaufman et al. (2009). Section 4.2.4 describes the Financial Development and Structure database.

4.2.1. World Bank Enterprise Survey

The World Bank Enterprise Survey is a major cross-sectional survey conducted in developing countries and emerging markets. It is a firm level survey that provides a sample of an economy's private sector. The survey aims to collect information about the business environment in the country including access to finance, corruption, infrastructure, crime, and competition. It also provides data for some of the performance measures, such as fixed assets, current assets, total liabilities including short-term and long-term debt to total assets and equity-share capital, as well as sales and expenses. The survey sample represents the whole non-agricultural private

economy. The overall sample involves selected manufacturing industries, service industries, and other relevant sectors of the economy. The service companies included in the survey are construction, retail, wholesale, hotels, restaurants, transport, storage, communications, and IT. Rarely, in a few countries, companies in other sectors, such as education or health related businesses, are included. In each country, companies in the cities or regions of major economic activity are chosen and the firms with five or more employees are aimed for interview. Companies that are 100% owned by the government/state do not take part in the survey.

The number of interviews that will take place is decided based on the size of the economy. In larger economies, 1,200-1,800 interviews have been made, 360 interviews occur in medium-sized economies, and 150 interviews in smaller economies. The size of the economy is measured based on the Gross National Income (GNI). The country is accepted as large economy if its GNI is more than $500 billion, a medium-sized economy if it is between $100 to $500 billion, and small if it is between $15 and $100 billion.

The survey is performed by private contractors on behalf of the World Bank. Government agencies or organizations connected to government are not included in the data collection since some questions in the survey are related to business and government relations and bribery. But the surveys are done in collaboration with business organizations and government agencies for the record of eligible firms. Mainly, the list of eligible firms is obtained from the country's statistical office. However, in some cases, the master list of firms is acquired from other government agencies, such as tax or business licensing authorities or sometimes taken from

business associations or marketing databases. If the list of firms is not approachable in one of those ways, then a sample of firms is created via block enumeration by the World Bank. First, a country's cities of major economic activity are divided into clusters and blocks. Then, a subset of blocks is selected and enumerated. In that way, World Bank creates an eligible list of firms manually. In any case, the confidentiality of the survey respondent is never compromised since it is important to have the highest number of participants and integrity and confidence in the quality of the data.

The survey is done based on face-to-face interviews and it follows two stages. In the first stage, from the list of the firms, eligible firms are selected using a Screener questionnaire. Contact information and some additional control information are gathered from those eligible firms via phone. At the second stage, two versions of the survey, Manufacturing or Services, is implemented based on the type of the eligible firm via a face-to-face interview. There are two kinds of questionnaires: the manufacturing questionnaire and the services questionnaire. Most of the questions are the same except those that are not relevant to that type of business. For example, questions about production and non-production workers are not applicable to retail companies. Both the manufacturing and services questionnaires included thirteen sections structured by topic:

- Section A: Control Information: Gathered information in the first stage of application.
- Section B :General information: properties of the companies.

- Section C: Infrastructure and Services: power, water, transport, and communication technologies.
- Section D: Sales and Supplies: imports, exports, supply and demand situations.
- Section E: Degree of Competition: number of competitors and technology.
- Section F: Capacity.
- Section G: Land: land ownership, land access issues.
- Section I: Crime: extent of crime and losses due to crime.
- Section K: Finance: sources of finance, access to credit.
- Section J: Business-Government Relations: quality of public services, consistency of policy, regulatory compliance costs (management time, bribes).
- Section L: Labour: employment, training, skills.
- Section M: Business Environment: ranking of general obstacles.
- Section N: Performance: numbers and figures needed to estimate performance or productivity.
- Section F: Capacity: use of production capacity, hours of operation, is a section only contained in the manufacturing questionnaire.

Most of the questions, more than 90%, objectively determine the characteristics of the business environment of a country. The remainder of questions, the obstacles to firm growth and performance, examine the views of survey respondents.

As a survey respondent, business owners and top managers have been surveyed for each company. When necessary, company accounts and human resource managers take part in the survey on behalf of the business owner or top manager to answer questions in the sales and labour sections of the survey.

Methodology

The methodology used for the sampling of the survey is a stratified random sampling with replacement method. In random sampling, all members of the population have the same probability of being chosen and no weighting of observations is needed. As opposed to a simple random sample, a stratified random sample divides all population units into homogeneous groups and, within each group, simple random samples are chosen. Therefore, this method helps handling estimates for each of the strata with a specified level of accuracy, while population estimates can also be estimated by properly weighting individual observations. The sampling weights deal with the varying probabilities of selection across different strata. The strata for the Enterprise Survey are firm size, business sector, and geographic region within each country. Firm size is divided into three groups based on the number of employees as small firms (5-19), medium firms (20-99), and large firms (100+). Sector breakdown is usually manufacturing, retail, and other services, while geographic regions within a country are selected based on which cities or regions collectively contain the majority of economic activity.

Since the enterprise survey contains more than 100 indicators, computation of a minimum sample size is difficult due to the variance of each indicator. Also, the time necessary to obtain permission for the quantitative variables, such as number of

employees and sales, are limitless; therefore, for practicality, total sales are selected to be the most vital quantitative variable in the survey. Due to the highly skewed distribution of sales, the essential sample size for interpretations about its mean is predictably too large. Hence, to take large variability, the sample size is calculated according to the logarithm of sales. For each strata, a minimum sample size is computed based on a 7.5% precision on estimate of log of sales.

Most of the indicators in the Enterprise Survey are calculated based on proportions; for instance, a percentage of firms that are involved in X activity or chose Y action. To simplify the computation of sample size, the variance of proportion is bounded. The minimum level of precision is assured by assuming the maximum variance (0.5). Assuming maximum variance, the sample sizes are calculated based on the estimates of proportions with 5% and 7.5% precision in 90% confidence intervals by using Equation 4.1.

$$n = \left[\frac{1}{N}+\frac{N-1}{N}\,\frac{1}{PQ}\left(\frac{k}{z_{1-\propto/2}}\right)^2\right]^{-1} \tag{4.1}$$

where N is the population size, P stands for the population proportion, Q equals to 1-P, k is the desired level of precision, and $z_{1-\propto/2}$ is the value of the normal standard coordinate for a desired level of confidence, 1-α. For instance, if the population is 10,000, then at the 5% precision minimum, the sample size is 270 and at 7.5% precision minimum, the sample size goes down to 120.

The generated sample sizes from the surveys are big enough for the selected industries to perform statistically robust analyses with levels of precision at a minimum 7.5% precision for 90% confidence intervals about estimates of population percentage at the industry level and estimates of the mean of log of sales at the industry level. A 7.5% precision of an estimate in a 90% confidence interval implies that the population parameter is within the 7.5% range of the observed sample estimate, except in 20% of the cases.

The major problem of the Enterprise Survey is that the sample represents only firms, which are keen to participate in the survey. If a firm refuses to participate in the survey, a willing party substitutes it. Only willing firms attend the survey; therefore, firms' systematic refusal to participate might affect the randomness of the sample. The refusal to attend the survey might be due to the economic structure since some firms may drop out of the market or it may be due to the manager's reaction. There could be couple of reasons for the managers' reaction. For instance, it could be due to low productivity, effects of negative features if the investment climate refuses to participate, or due to a previous experience with the survey.

Another problem in Enterprise survey is non-response questions. This is a severe problem for the collection of accounting data to analyse the performance of firms, such as sales, employment, cost of labour, raw materials, and net book value of fixed assets. The sampling strategy for non-response items factors is up to 25% non-response per stratum; therefore, there are adequate responses to calculate performance indicators with the precision indicated in this sampling methodology. Consequently, the total number of required interviews per stratum brings it down to

160. But, 160 interviews are completed only for the medium and large economies since they have enough observations at the industry level and constraints in the budget. By using the World Bank Enterprise survey, we create our main data set. In the next section, we describe the main sample used in this study.

4.2.1.1. Sample

From the World Bank Enterprise Survey, the firm level variables used in this study are collected. Our data set includes 24 developing countries from five different regions. As can be seen from Table 4.1, the countries included are as follows: Ethiopia, Malawi, South Africa, Tanzania and Zambia from the African region; Cambodia, Indonesia, and the Philippines from the East Asia and Pacific region; Brazil, Chile, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, and Peru from the Latin America and Caribbean region; Morocco, Oman, and the Syrian Arab Republic from the Middle East and North African region; and Bangladesh, India, Pakistan, and Sri Lanka from the South Asian region. The dataset includes 15,201 firms from the above mentioned countries. The firms are omitted from the sample if they do not have both total liabilities and total assets. We also exclude firms if their leverage ratio is higher than one.[7] Therefore, we end up with 10,839 companies and a total of 27,738 observations.

The total number of firm observation in our sample is 27,738 including 48.1% of small firms, 41% of medium firms, and 10.9% of large firms (see Graph 2 in the appendices). The Latin America and Caribbean region, with 10,148, has the highest number of observations, while the Middle East and North African region, 2,309, has

[7] If a firm's leverage ratio is higher than one, it means that the firm goes bankrupt. That's why we excluded the firms that have already gone bankrupt.

the lowest (see Graph 1 in the appendices). Although the Latin America and Caribbean region has the highest number of small firm observations, for medium and large firms, the South Asian region has the utmost (see Graph 3 in the appendices). In contrast, the least observations for small firms, 1,097, is in the East Asia and Pacific region, while the lowest for medium, 1,048, and large firms, 103, are in the Middle East and North African region.

The African region includes 3,444 observations that contain 47.5% of small firms, 43.3% of medium firms, and 9.2% of large firms. Ethiopia, with 76.2%, has more small firm observations than other countries in the region. Observations for medium size firms are at 17.8%, whereas large firms represent 6%. Malawi has 42.1% of small firms, 47.6% of medium size firms, and 10.3% of large firms. South Africa has more firm observations than other countries in the region with 1,370. It also has the highest proportion of medium and large size firm observations when compared to other countries in the region. It has 27.2% (59.9%) of small (medium) and 12.9% of large firms. Tanzania has 59.4% (36.9%) of small (medium) and 3.7% of large firm observations, while Zambia has 31% (59%) of small (medium) and 10% of large firm observations.

The East Asia and Pacific region contains 3,487 observations that include 31.5% of small, 45.5% of medium, and 23% of large firms. Cambodia with 90.6% has the highest proportion of small firm observations as compared to other countries in the region. Indonesia has 1,442 firm observations, which include 29.9% (39.4%) of small (medium) and 30.7% of large firm observations. The Philippines has 1,864

firm observations containing 26.9% (54.1%) of small (medium) and 19% of large firms.

Table 4.1. Firm Observation by Country and Region

This table presents the composition of firm observations for each country and region in the sample. Small reports firms less than 50 employees. Medium employs 50 to 500 employees, while large firms have more than 500 employees. Private are privately held companies and listed are publicly held firms. AFR stands for the African Region. EAP symbolizes the East Asia and Pacific region, while LCR is for the Latin America and Caribbean region. MNA stands for the Middle East and North Africa region and SAR is for the South Asian region.

	Years	***Total***	**Small**	**Medium**	**Large**	**Private**	**Listed**
AFR		*3,444*	*1,636*	*1,490*	*318*	*3,344*	*100*
Ethiopia	1999-2001	1,091	831	195	65	1,091	0
Malawi	2003-2004	233	98	111	24	217	16
South Africa	2000-2002	1,370	373	820	177	1,320	50
Tanzania	2000-2002	355	211	131	13	344	11
Zambia	1999-2001	395	123	233	39	372	23
EAP		*3487*	*1097*	*1588*	*802*	*2928*	*559*
Cambodia	2001-2002	181	164	11	6	181	0
Indonesia	2000-2002	1,442	431	568	443	1,286	156
Philippines	2000-2002	1,864	502	1,009	353	1,461	403
LCR		*10,148*	*6,065*	*3,594*	*489*	*9,363*	*785*
Brazil	2000-2002	4,232	2,244	1,795	193	4,056	176
Chile	2002-2003	1,793	1,000	663	130	1,641	152
Ecuador	2000-2002	756	437	301	18	348	408
El Salvador	2000-2002	676	418	222	36	676	0
Guatemala	2000-2002	751	495	218	38	751	0
Guyana	2002-2003	273	229	42	2	245	28
Honduras	2000-2002	717	497	173	47	717	0
Nicaragua	2000-2002	757	618	121	18	757	0
Peru	1999-2001	193	127	59	7	172	21
MNA		*2,309*	*1,158*	*1,048*	*103*	*303*	*0*
Morocco	2001-2003	2,006	901	1,002	103	NA	NA
Oman	2000-2002	143	100	43	0	143	0
Syria	2000-2002	160	157	3	0	160	0
SAR		*8350*	*3387*	*3653*	*1310*	*7656*	*691*
Bangladesh	1999-2001	780	246	426	108	730	50
India	1999-2001	3,868	767	2,206	895	3,396	472
Pakistan	1999-2001	2,764	2,094	625	45	2,674	90
Sri Lanka	2001-2003	938	280	396	262	856	79
Total		***27,738***	***13,343***	***11,373***	***3,022***	***23,594***	***2,135***

The Latin America and Caribbean region has the largest amount of firm observations with 10,148 as compared to other regions. This region contains 59.8% (35.4%) of small (medium) and 4.8% of large company observations. Within this region, Brazil has more firm observations than other countries. It has 4,232 firm observations that include 53% (42.4%) of small (medium) and 4.6% of large companies. After Brazil, Chile has the highest number of observations in the region with 1,793 of which 55.8% (37%) of small (medium) and 7.2% of large firms. In Ecuador, 57.8% (39.8%) of the firms are small (medium) sized and 2.4% percent are large firms, while, El Salvador has 61.8% (32.8%) of small (medium) and 5.4% of large firms. Guatemala has 751 firm observations and most of them are small and medium sized firms. Guyana has a few large firm observations at 0.7% while small (medium) firms are 83.9% (15.4%). The total number of company observations in Honduras is 717 that contain 69.3% (24.1%) of small (medium) and 6.6% of large firms. Nicaragua has 757 firm observations. Within those observations, small (medium) firms have 81.6% (16%) and around 2.4% of large firms. Peru has 65.8% (30.6%) of small (medium) and 3.6% of large firms.

The Middle East and North Africa region has 2,309 firm observations that have 50.1% (45.4%) of small (medium) and 4.5% of large firms. This region includes three countries: Morocco, Oman, and Syria. Morocco has 2,006 observations, which contain 44.9% (50%) percent of small (medium) and 5.1% of large firms. Oman and Syria do not have any large firms. Oman has 69.9% of small and 30.1% of medium size firms, whereas Syria has 98.1% of small and 1.9% of medium firms.

The South Asian region has 8,350 company observations, which have 40.5% (43.8%) of small (medium) and 15.7% of large firms. Bangladesh has 31.5% (54.6%) of small (medium) and 13.9% of large firms. India with 75.8% has the highest proportion of small firms to total firms, while 22.6% are medium sized and 1.6% are large firms. The total number of observations in India is 3,868. Pakistan has 2,764 firms, which include 75.8% (22.6%) of small (medium) and 1.6% of large firms. For Sri Lanka, 29.9% (42.2%) of the firm observations are small (medium), whereas 27.9% are large sized firms.

To sum, the majority of the firms in the sample are small and medium sized companies. Brazil has the highest number of small firm observations, while India has the highest for both medium and large firms. Malawi with 98 has the lowest number of observations for small firms, while Oman and Syria do not have any large firms.

For privately held and publicly listed firms, the total number of observations in the sample is 25,729, which include 92% of privately held and 8% of publicly listed firms. The total number of observations for privately held and listed firms are 23,594 and 2,135, respectively. Some countries in the sample do not have either a stock market or an active stock market. That's why Cambodia, Ethiopia, Honduras, Nicaragua, and Syria do not have publicly listed companies. For other countries, El Salvador, Guatemala, and Oman, our dataset does not contain any publicly held companies. India with 472 observations has the highest number for listed companies, while Tanzania, with 11, has the lowest number of observations in the sample. Alternatively, Brazil, with 4,056, has the highest number of observations for

private firms and Oman, with 143, has the lowest number of observations for private firms.

As a result, the Latin America and Caribbean region represents the majority of the sample, while the Middle East and North African region has the least number of observations. Overall, Brazil, with 4,232 observations, has the majority of the sample, while Oman, with 143, has the lowest number of observations.

4.2.2. World Development Indicators

The World Development Indicators database is provided by World Bank. World Development Indicators (WDI) covers more than 200 countries and contains statistical data on over 700 development indicators including social, economic, financial, natural resources, and environmental indicators from 1960 onward. The goal of WDI is to provide relevant, high-quality, internationally comparable statistics. To achieve this goal, they describe, collect, and disseminate international statistics with the help of international and government agencies, as well as private and non-governmental organisations. We use the WDI database for our economic environment variables. We use annual data for macroeconomic variables since our firm level variables are based on the end of year accounting data.

4.2.3. Worldwide Governance Indicators

Kaufmann et al. (2009) create the Worldwide Governance Indicators (WGI) database by combining 35 different data sources from 33 various institutions around the world. The database involves 213 countries and territories starting from the year 1996. The database has been updated each year. Basically, the database merges the

views of various survey respondents including enterprises, citizens, and experts in both developed and developing countries and provides data on perceptions of governance.

Kaufmann et al. (2010) define governance as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them." Based on this definition, the gathered data is organized under six clusters corresponding to the six dimensions of governance that include Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. Voice and Accountability, and Political Stability and Absence of Violence/Terrorism as indicators for the process by which governments are selected, monitored, and replaced. Voice and Accountability indicates whether a country's citizens are involved in choosing their government and whether there is freedom of expression, freedom of association, and free media. Alternatively, Political Stability and Absence of Violence/Terrorism signify the possibility that a government will be destabilized by unconstitutional or violent means, containing politically motivated violence and terrorism. Both of them are used to measure the process by which governments are selected, monitored, and replaced.

Government Effectiveness and Regulatory Quality imply the ability of the government to successfully create and apply sound policies. Government

Effectiveness indicates the views of the quality of public services and civil service and the degree of its independence from political pressure, the quality of policy creation and application, and the trustworthiness of the government's dedication to such policies. Regulatory Quality represents the government's capability to create and apply sound policies and regulations that allow and encourage private sector development.

Rule of Law and Control of Corruption specify the respect of citizens and the state for the institutions that manage economic and social relations among them. Rule of Law denotes the views about the quality of contract enforcement, property rights, the police, the courts, and the probability of crime and violence. Control of Corruption indicates the opinions as to whether public power is exercised for private gain, containing both petty and grand forms of corruption, together with a capture of the state by elites and private interests.

All of these six dimensions are interrelated to each other. They are gathered as a set of empirical proxies from various sources including surveys of firms and households, subjective evaluation of a range of commercial business information providers, non-governmental organizations, and a number of multilateral organizations and other public sector bodies. For instance, data for corruption are gathered from cross country households or firm surveys that provides the perceptions and experiences of respondents and NGO or commercial data providers, which offer its own corruption appraisal according to its network of respondents. Then, those different measures of corruption are combined into a composite

indicator that summarizes their common component. The same method applies to the other indicators.

Methodology

The combination of various individual data sources into six aggregate governance indicators is accomplished by applying a statistical tool unobserved components model. Since each data source provides an imperfect signal of some underlying concept of governance that is difficult to notice straightforwardly, this statistical tool helps to overcome this signal extraction problem. For each governance indicator, they propose that the observed score of country j on indicator k, Y_{jk} is a linear function of unobserved governance in country j, g_j and error term ε_{jk}; therefore, following model is applied:

$$Y_{jk} = \alpha_k + \beta_k(g_j + \varepsilon_{jk}) \qquad (4.2)$$

As a safe selection of units, g_j is assumed to be a normally distributed random variable with mean zero and variance one. This indicates that aggregate governance indicators are a standard normal random variable with zero mean, unit standard deviation and varying around -2.5 to 2.5. The error term is assumed to be normally distributed with zero mean and a variance that does not change across countries, but alters across indicators, $V[\varepsilon_{jk}] = \sigma_k^2$ and independent through sources, $E[\varepsilon_{jk}\varepsilon_{jm}] = 0$ for source m different from source k. The parameters α_k and β_k indicate the different units to measure governance from different sources. For instance, corruption is measured on a scale from 0 to 3 by one data source; whereas, in another data source, it might be measured based on a 1 to 10 scale. These

differences in explicit and implicit selection of units in the observed data from each source are captured by α_k and β_k. Following that, estimates of these two parameters are used to rescale the data from each source into common units. By using the estimates, $\alpha_k, \beta_k, \sigma^2{}_k$ from the above equation, the following model is constructed:

$$E\left[g_j \middle| Y_{j1}, \ldots, Y_{jk}\right] = \sum_{k=1}^{K} w_k \frac{Y_{jk} - \alpha_k}{\beta_k} \tag{4.3}$$

This conditional mean is used as the governance estimate that is a weighted average of the rescaled scores for each country, $\frac{Y_{jk} - \alpha_k}{\beta_k}$. w_k refer to weights calculated as $w_k = \frac{\sigma_k^{-2}}{1 + \sum_{k=1}^{k} \sigma_k^{-2}}$ and weights become larger for the sources that provide more informative signal of governance. By applying this methodology, the six governance indicators are calculated.

For our analysis, we use only the Control of Corruption due to the high correlation among other indicators (see Table 1 in the appendices). The corruption indicator is measured in units ranging -2.5 to 2.5. The higher values correspond to better governance, meaning less corruption in the country. The WGI continues to collect data for each year beginning in 1996, but the database does not cover the years 1997, 1999, and 2001. For the year 1999, we derive averages by using the Control of Corruption variable in the years 1998 and 2000, while for 2001, we use 2000 and 2002. For the other years, we apply the available values from the database since after 2002, the data is available for each year.

4.2.4. Financial Development and Structure Database

The financial development and structure database is created by Beck et al. (2010). The database combines the indicators for financial development and structure across countries and over time. The database provides statistics on the size, activity, and efficiency of financial intermediaries and markets, such as banks, nonbanks, equity markets, and bond markets. Basically, the database attempts to compare the financial systems for a given country and over time. Moreover, it also includes various indicators of financial globalization containing international bond issues, international loans, offshore deposits, and remittance flows. The provided indicators in the database cover different dimensions of the financial system. Indicators are created based on the raw data from various databases. Indicators on financial intermediary development is created using the IMF's International Financial Statistics; indicators on the equity market are from the Emerging Market Database and indicators on bond market are taken from the BIS. The database includes more than 200 countries from 1960-2009. The data for financial institutions and financial globalization is collected from the Financial Development and Structure database (Beck et al., 2009). As a financial globalization proxy, we use the ratio of offshore bank loans relative to GDP and the ratio of offshore bank deposits to domestic bank deposits as they are the only variables available for all of the countries in the dataset.

4.3. Properties of Data

In this section, we discuss the descriptive statistics for leverage, debt maturity, firm level variables, economic environment variables, and financial environment variables. We present the summary statistics both for the overall sample and individual countries in the sample. Initially, we discuss leverage and debt maturity.

Then, we present the statistics for firm level variables, which are asset tangibility, profitability, and size. Following that, we report the averages for economic environment variables, GDP per capita, growth, inflation, interest, and tax, respectively. Then, we discuss the descriptive statistics of the variables for financial environment that include corruption, legal system, financial institutions, and financial globalization. Since we have 24 different countries in the sample, we conduct an F-test to examine whether the differences in variables across countries are statistically significant.

4.3.1. Leverage

Table 4.2 presents descriptive statistics for leverage. The mean (median) of leverage for all countries in the sample is 39.09% (37.71%). Leverage is low in our sample compared to developed countries. In the U.S. (UK), the mean of leverage is around 58% (54%) (Rajan and Zingales, 1995). Firms in developed countries are more highly leveraged than firms in developing countries.

On the country level, we analyse whether the leverage levels of firms demonstrate differences among different countries. We apply an F-test to see whether the differences across countries are statistically significant. We find that the leverage level indicates differences across countries and this difference is statistically significant. The mean of leverage varies 5.18% and 59.58%. Firms in Cambodia with 5.18% have the lowest leverage compared to firms in other countries in the sample. In contrast, firms in Morocco with 59.58% have the highest average leverage. The leverage levels of firms in Malawi, Zambia, and Morocco are similar

to that of developed countries; however, most of the countries in the sample have lower leverage when compared to developed countries.

Table 4.2. Summary Statistics for Leverage[8]

Leverage	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.3909	0.3771	1.0000	0.0000	0.2218	1.8154	1849.22	0.0000	27738
Cambodia	0.0518	0.0000	0.6271	0.0000	2.6324	10.1467	594.23	0.0000	181
Guyana	0.0769	0.0167	0.9650	0.0000	3.0365	13.7256	1728.10	0.0000	273
Syria	0.1312	0.0538	0.9709	0.0000	2.1316	7.9805	286.53	0.0000	160
Pakistan	0.2015	0.1304	0.9851	0.0000	1.2367	3.8630	790.31	0.0000	2764
Nicaragua	0.2034	0.0913	0.9861	0.0000	1.2709	3.6495	217.09	0.0000	757
Ethiopia	0.2414	0.1332	0.9878	0.0000	0.8634	2.5142	146.29	0.0000	1091
Bangladesh	0.2549	0.0000	0.9837	0.0000	0.8970	2.2570	122.54	0.0000	780
Guatemala	0.2647	0.1853	0.9951	0.0000	0.9080	2.8689	103.74	0.0000	751
Honduras	0.2671	0.1629	0.9997	0.0000	0.9206	2.6199	105.59	0.0000	717
Indonesia	0.3097	0.1913	0.9996	0.0000	0.5695	1.8480	157.69	0.0000	1442
Tanzania	0.3804	0.3611	0.9474	0.0000	0.2687	2.0218	18.42	0.0001	355
Brazil	0.3949	0.3612	0.9994	0.0000	0.3437	2.0077	256.92	0.0000	4232
Oman	0.4064	0.3849	0.9915	0.0000	0.3256	2.1740	6.59	0.0370	143
Chile	0.4188	0.4080	0.9998	0.0000	0.2063	2.2238	57.73	0.0000	1793
El Salvador	0.4334	0.4471	0.9763	0.0000	-0.0589	2.1142	22.49	0.0000	676
South Africa	0.4371	0.4190	1.0000	0.0000	0.1256	1.7328	95.27	0.0000	1370
Sri Lanka	0.4421	0.4664	0.9995	0.0000	-0.0156	1.7824	57.98	0.0000	938
Philippines	0.4720	0.4883	0.9996	0.0000	-0.0751	1.7821	116.96	0.0000	1864
Ecuador	0.4790	0.4661	0.9893	0.0000	0.0090	2.0910	26.04	0.0000	756
India	0.5102	0.5588	0.9990	0.0000	-0.4413	2.3317	197.53	0.0000	3868
Peru	0.5104	0.5218	0.9677	0.0000	-0.1235	2.1295	6.58	0.0372	193
Malawi	0.5437	0.5702	0.9990	0.0000	-0.2979	2.0284	12.61	0.0018	233
Zambia	0.5659	0.5650	0.9997	0.0012	-0.1984	2.0296	18.09	0.0001	395
Morocco	0.5958	0.6290	0.9984	0.0000	-0.4725	2.4156	103.18	0.0000	2006
F-test	(23, 27714)	264.4999	0.0000						

4.3.2. Debt maturity

Table 4.3 provides the summary statistics for debt maturity. To proxy debt maturity, we use three ratios: long-term debt to total assets, short-term debt to total assets, and

[8] Please refer to table 5 in the appendix for the results of F-test for regions.

long-term debt to total debt. The mean (median) of long-term debt to total assets is 14.01% (2.56%) and the mean (median) of short-term debt to total assets is 24.94% (18.25%). Alternatively, the average (median) of long-term debt to total debt is 32.63% (19.73%) for the firms in the sample. We apply an F test to examine whether the differences on debt maturity across countries are statistically significant. We confirm that long-term debt to total assets levels alter across countries and vary between 1.80% and 27.32% in the sample. Firms in Cambodia have the lowest average long-term debt to total assets, while firms in India have the highest long-term debt to total assets. The average long-term debt to total assets in the U.S. (UK) is 37% (28%) (Rajan and Zingales, 1995). Firms in developed countries have more long-term debt to total assets than firms in developing countries. Even the highest average is not close to the companies in the U.S.

The average (median) short-term debt to total assets for all firms in the sample is 24.94% (18.25%). Table 4.3 Panel B presents the descriptive statistics among all countries in the sample. The mean of short-term debt to total assets varies between 2.70% and 53.44%. Guyana has the lowest short-term debt to total assets level with 2.70%, while Morocco, with 53.44%, has the highest short-term debt to total assets. By applying an F test, we analyse whether the differences in short-term debt to total assets levels are significant. We confirm that short-term debt to total assets levels show statistically significant differences across the countries.

Table 4.3. Summary Statistics for Debt Maturity

Panel A: Descriptive Statistics for Long-term Debt to Total Assets

LTD/TA	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.1401	0.0256	0.9973	0.0000	1.5821	5.0374	16056.11	0.0000	27203
Cambodia	0.0180	0.0000	0.3009	0.0000	3.5110	15.8268	1612.68	0.0000	733
Syria	0.0360	0.0000	0.6307	0.0000	3.9788	18.5542	2035.04	0.0000	665
Ethiopia	0.0492	0.0000	0.9359	0.0000	3.3519	15.2746	5974.13	0.0000	736
Guyana	0.0499	0.0000	0.9231	0.0000	3.7843	20.8410	4272.27	0.0000	745
Morocco	0.0614	0.0000	0.8029	0.0000	2.6676	11.0945	7855.60	0.0000	233
Pakistan	0.0665	0.0000	0.9700	0.0000	2.3848	10.6256	9276.50	0.0000	355
Nicaragua	0.0808	0.0000	0.9164	0.0000	2.6120	10.1926	2423.42	0.0000	665
Brazil	0.0931	0.0000	0.9412	0.0000	2.0383	6.9552	5688.89	0.0000	160
Guatemala	0.1089	0.0004	0.8100	0.0000	1.7560	5.7435	616.51	0.0000	4232
Indonesia	0.1216	0.0000	0.9973	0.0000	1.9370	6.1609	1501.97	0.0000	780
Honduras	0.1334	0.0095	0.9905	0.0000	1.8073	5.9295	619.67	0.0000	1442
Bangladesh	0.1384	0.0000	0.8846	0.0000	1.4766	4.2128	331.27	0.0000	181
South Africa	0.1497	0.0457	0.9828	0.0000	1.4887	4.4798	631.07	0.0000	143
Malawi	0.1534	0.0396	0.9024	0.0000	1.5872	4.7590	127.86	0.0000	1370
Ecuador	0.1546	0.0859	0.9836	0.0000	1.6446	5.5871	485.23	0.0000	2006
Chile	0.1556	0.0931	0.9806	0.0000	1.3381	4.3982	681.10	0.0000	273
Tanzania	0.1562	0.0613	0.8001	0.0000	1.2679	3.6505	101.37	0.0000	1864
Zambia	0.1574	0.0363	0.9382	0.0000	1.4244	4.2123	157.76	0.0000	3868
Sri Lanka	0.1779	0.0821	0.9835	0.0000	1.4127	4.2788	375.93	0.0000	193
Oman	0.1814	0.1343	0.9058	0.0000	1.5869	5.3401	92.65	0.0000	1793
Peru	0.1816	0.1090	0.8893	0.0000	1.4724	4.6600	91.90	0.0000	395
El Salvador	0.1960	0.1546	0.9362	0.0000	1.1170	4.0619	169.52	0.0000	2752
Philippines	0.2052	0.0000	0.9956	0.0000	1.1438	3.0715	406.86	0.0000	938
India	0.2732	0.2871	0.9829	0.0000	0.4840	2.8835	153.19	0.0000	687
F-test	(23, 27185)	169.3847	0.0000						

Panel B: Descriptive Statistics for Short-term Debt to Total Assets

STD/TA	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.2494	0.1825	0.9995	0.0000	0.9333	2.9678	3951.10	0.0000	27209
Guyana	0.0270	0.0108	0.8014	0.0000	7.5496	77.8201	66271.09	0.0000	273
Cambodia	0.0332	0.0000	0.5000	0.0000	2.9939	12.8130	996.61	0.0000	181
Syria	0.0951	0.0238	0.9709	0.0000	2.7210	12.7481	830.94	0.0000	160
Ethiopia	0.0997	0.0000	0.9878	0.0000	2.0392	6.5737	898.06	0.0000	733
Bangladesh	0.1165	0.0000	0.9372	0.0000	1.9740	6.2931	859.01	0.0000	780
Nicaragua	0.1201	0.0265	0.9861	0.0000	2.1509	7.7877	1270.44	0.0000	736
Honduras	0.1232	0.0173	0.9714	0.0000	1.9770	6.4568	789.57	0.0000	687
Pakistan	0.1333	0.0667	0.9851	0.0000	1.9866	6.7233	3399.75	0.0000	2752
Guatemala	0.1568	0.0920	0.9368	0.0000	1.5322	5.1464	434.50	0.0000	745
Indonesia	0.1881	0.0151	0.9754	0.0000	1.2740	3.4105	400.18	0.0000	1442
Tanzania	0.2243	0.1665	0.9368	0.0000	1.0135	3.3665	62.76	0.0000	355
Oman	0.2250	0.1905	0.8317	0.0000	1.1997	3.9605	39.80	0.0000	143
El Salvador	0.2333	0.1935	0.9466	0.0000	0.8707	3.2018	85.15	0.0000	665
India	0.2370	0.2049	0.9966	0.0000	1.0789	3.9374	892.02	0.0000	3868
Chile	0.2632	0.2250	0.9926	0.0000	1.0016	3.8105	348.84	0.0000	1793
Sri Lanka	0.2643	0.2057	0.9995	0.0000	0.7198	2.5868	87.68	0.0000	938
Philippines	0.2668	0.1863	0.9982	0.0000	0.8294	2.5653	228.37	0.0000	1864
South Africa	0.2874	0.2456	0.9679	0.0000	0.5959	2.4740	96.88	0.0000	1370
Brazil	0.3018	0.2537	0.9981	0.0000	0.7509	2.7826	406.06	0.0000	4232
Ecuador	0.3115	0.2700	0.9889	0.0000	0.6395	2.6959	47.89	0.0000	665
Peru	0.3288	0.2972	0.9677	0.0000	0.6631	3.0860	14.20	0.0008	193
Malawi	0.3903	0.4264	0.9519	0.0000	0.1485	1.9201	12.18	0.0023	233
Zambia	0.4085	0.3887	0.9945	0.0012	0.3603	2.2394	18.07	0.0001	395
Morocco	0.5344	0.5598	0.9984	0.0000	-0.2224	2.1596	75.57	0.0000	2006
F-test	(23, 27185)	286.1341	0.0000						

Finally, we present the summary statistics for long-term debt to total debt. The mean of long-term debt to total debt is 32.63% for all firms in the sample. The average alters between 9.96% and 56.24% among the countries. We conduct an F-test to examine whether this difference among the countries is statistically significant. We confirm that the difference is statistically significant. Firms in Morocco have the shortest maturity of debt, while the firms in Bangladesh have the longest maturity of debt.

Panel C: Descriptive Statistics for Long-term Debt to Total Debt

LTD/TD	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.3263	0.1973	1.0000	0.0000	0.6207	1.9418	2674.91	0.0000	24127
Morocco	0.0996	0.0000	1.0000	0.0000	2.4421	9.1810	5184.63	0.0000	2005
Ethiopia	0.1201	0.0000	1.0000	0.0000	2.2358	6.5036	872.63	0.0000	649
Brazil	0.1996	0.0000	1.0000	0.0000	1.2630	3.4112	1105.60	0.0000	4051
Syria	0.2354	0.0000	1.0000	0.0000	1.1556	2.4947	27.52	0.0000	118
Zambia	0.2361	0.0838	0.9960	0.0000	0.9905	2.6367	66.77	0.0000	395
Malawi	0.2497	0.0994	1.0000	0.0000	1.0170	2.7053	40.30	0.0000	229
Ecuador	0.2787	0.1802	1.0000	0.0000	0.8259	2.5428	89.72	0.0000	733
South Africa	0.2846	0.1691	1.0000	0.0000	0.8245	2.4205	151.10	0.0000	1187
Pakistan	0.3087	0.0000	1.0000	0.0000	0.6220	1.8125	269.53	0.0000	2187
Cambodia	0.3091	0.3000	1.0000	0.0000	0.6437	2.5816	3.59	0.1662	47
Guyana	0.3124	0.0000	1.0000	0.0000	0.6527	1.6387	36.02	0.0000	243
Peru	0.3172	0.2681	1.0000	0.0000	0.7388	2.6246	18.40	0.0001	190
Chile	0.3314	0.2854	1.0000	0.0000	0.4894	2.0231	139.05	0.0000	1745
Nicaragua	0.3522	0.0904	1.0000	0.0000	0.5741	1.6362	73.10	0.0000	552
Guatemala	0.3537	0.2000	1.0000	0.0000	0.5249	1.6910	80.13	0.0000	683
Tanzania	0.3615	0.2542	1.0000	0.0000	0.5099	1.7611	35.62	0.0000	332
Philippines	0.3764	0.1886	1.0000	0.0000	0.4606	1.4863	222.01	0.0000	1697
El Salvador	0.4185	0.4210	1.0000	0.0000	0.1423	1.6608	50.53	0.0000	647
Sri Lanka	0.4188	0.3384	1.0000	0.0000	0.3380	1.6843	75.40	0.0000	827
Indonesia	0.4196	0.2920	1.0000	0.0000	0.3258	1.4224	116.89	0.0000	963
Oman	0.4412	0.4201	1.0000	0.0000	0.1725	1.8278	8.52	0.0141	137
Honduras	0.4712	0.5000	1.0000	0.0000	0.0522	1.2725	68.39	0.0000	548
India	0.5343	0.5597	1.0000	0.0000	-0.3306	2.2358	152.24	0.0000	3578
Bangladesh	0.5624	0.5885	1.0000	0.0000	-0.2558	1.9116	23.14	0.0000	384
F-test	(23, 24103)	171.74	0.0000						

4.3.3. Firm-level variables

In this section, we discuss the descriptive statistics for firm-level variables. We present the summary statistics for each country in the sample. We conduct an F-test to examine whether the alterations in firm-level variables are statistically significant among the countries.

Table 4.4. Summary Statistics for Tangibility

Tangibility	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.4521	0.4407	1.0000	0.0000	0.2218	1.8154	1269.47	0.0000	27738
Syria	0.1958	0.1220	0.9706	0.0000	1.2996	4.3024	48.95	0.0000	139
Cambodia	0.2596	0.1666	0.9715	0.0032	1.0502	3.0107	19.49	0.0001	106
Oman	0.2790	0.2103	0.9414	0.0014	1.1616	3.7002	31.64	0.0000	129
Morocco	0.2990	0.2604	0.9937	0.0000	0.6737	2.7167	158.44	0.0000	2006
Chile	0.3487	0.2983	1.0000	0.0000	0.7033	2.6167	151.42	0.0000	1710
South Africa	0.3631	0.3478	0.9348	0.0000	0.2171	2.0494	60.20	0.0000	1323
Peru	0.3685	0.3592	0.8704	0.0063	0.1753	1.8053	11.37	0.0034	176
Philippines	0.4197	0.3710	1.0000	0.0000	0.4379	2.0206	133.42	0.0000	1855
India	0.4335	0.4732	0.9896	0.0000	-0.0340	2.3146	75.74	0.0000	3832
Brazil	0.4399	0.4223	1.0000	0.0000	0.2215	2.0640	188.85	0.0000	4227
Zambia	0.4412	0.4449	0.9706	0.0010	-0.0349	2.1122	13.05	0.0015	395
Ecuador	0.4654	0.4529	1.0000	0.0000	0.1636	2.1464	25.17	0.0000	723
El Salvador	0.4785	0.4614	1.0000	0.0000	0.1171	2.0061	29.15	0.0000	671
Malawi	0.4811	0.4520	1.0000	0.0024	0.1997	1.9401	12.35	0.0021	231
Pakistan	0.4838	0.4739	0.9915	0.0000	-0.0032	1.9393	129.53	0.0000	2763
Ethiopia	0.5037	0.5014	1.0000	0.0000	0.0291	1.8612	58.40	0.0000	1078
Indonesia	0.5165	0.5292	1.0000	0.0000	-0.0654	1.8510	76.12	0.0000	1366
Tanzania	0.5312	0.5363	1.0000	0.0000	0.0072	1.8759	17.64	0.0001	335
Sri Lanka	0.5356	0.5777	1.0000	0.0000	-0.3077	1.9531	57.63	0.0000	938
Guatemala	0.5636	0.5889	0.9964	0.0006	-0.3701	2.2162	36.03	0.0000	744
Honduras	0.6094	0.6667	1.0000	0.0000	-0.4864	1.9503	59.73	0.0000	700
Bangladesh	0.6108	0.6447	1.0000	0.0000	-0.4587	2.2595	34.81	0.0000	601
Nicaragua	0.6310	0.7016	1.0000	0.0000	-0.5574	1.9945	70.53	0.0000	751
Guyana	0.7886	0.8917	0.9952	0.0000	-1.8707	5.6130	230.82	0.0000	266
F-test	(23, 27041)	140.6766	0.0000						

4.3.3.1. Tangibility

The mean (median) of asset tangibility of the firms in the sample is 45.21% (44.07%). Tangible assets play an important role for the debt financing decisions of firms. As tangible assets can be used as collateral, firms with high tangible assets should have greater borrowing capacity. Thus, the greater the tangible assets, the more debt firms must get. The range for tangibility of assets in the sample alters between 19.58% and 78.86%. The firms in Syria have the lowest level of tangible assets, while firms in Guyana have the highest level of tangible assets. The level of collateral might be one of the reasons why firms in Syria have low levels of debt.

The mean of asset tangibility for listed companies in the U.S. (UK) is 39.5% (35.6%) (Antoniou et al., 2008). The firms in developing countries must have more tangible assets to be financed by debt compared to firms in developed countries.

Table 4.5. Summary Statistics for Profitability

Profitability	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.3702	0.2197	7.3933	-4.0425	2.2688	15.8356	208828.6	0.0000	27041
Oman	0.0205	0.0234	1.2811	-2.9019	-2.9517	18.7169	1479.83	0.0000	126
Syria	0.1219	0.0691	2.5153	-1.8017	2.2011	17.6937	1470.53	0.0000	150
Zambia	0.1549	0.0835	6.5916	-1.9149	7.3611	94.5567	140814.70	0.0000	393
Morocco	0.1852	0.1613	6.8393	-1.8612	3.6326	72.3363	405227.70	0.0000	2001
Peru	0.1885	0.1252	1.6049	-2.6778	-1.1590	17.8795	1823.62	0.0000	193
Ethiopia	0.1988	0.0682	5.7591	-3.6692	2.5445	18.8511	12379.58	0.0000	1072
Guyana	0.2169	0.1772	2.5642	-0.7032	3.0698	28.0740	7580.34	0.0000	273
Cambodia	0.2179	0.1753	2.1950	-3.1190	-0.4186	9.7158	314.89	0.0000	165
Tanzania	0.2444	0.1480	4.4116	-1.7562	2.0348	17.3838	3221.49	0.0000	346
South Africa	0.2498	0.1340	3.3535	-2.6621	1.4031	11.0304	4091.45	0.0000	1357
Philippines	0.2843	0.1082	7.3933	-4.0425	2.5525	17.7351	18421.14	0.0000	1818
Guatemala	0.3010	0.2065	5.5851	-3.9778	1.2877	13.5844	3643.92	0.0000	737
Nicaragua	0.3015	0.1477	3.6540	-1.7348	1.9565	9.6866	1855.68	0.0000	742
El Salvador	0.3054	0.1778	5.5542	-3.2466	1.8842	15.1286	4482.92	0.0000	667
Chile	0.3068	0.2088	5.7963	-3.1258	2.1280	16.9260	15735.69	0.0000	1781
Ecuador	0.3437	0.2608	5.1958	-3.6680	1.5120	14.7338	4092.81	0.0000	669
Honduras	0.3754	0.1822	4.8631	-3.2097	1.0826	8.2700	895.37	0.0000	662
Pakistan	0.3964	0.1644	6.1774	-3.9045	2.3021	13.2354	14202.16	0.0000	2706
India	0.4294	0.3279	5.6317	-2.8611	2.5957	16.9023	34997.29	0.0000	3814
Malawi	0.4952	0.3861	4.6236	-3.0193	2.0143	13.3721	1176.19	0.0000	228
Brazil	0.5113	0.3448	6.5042	-3.5770	1.9301	11.2353	14334.82	0.0000	4159
Indonesia	0.5151	0.3609	6.7542	-3.6444	1.0285	9.3138	2463.81	0.0000	1341
Sri Lanka	0.5483	0.3465	6.3548	-2.8708	2.3063	13.2677	4624.61	0.0000	876
Bangladesh	0.6242	0.3153	6.4745	-0.9174	2.8045	11.8892	3521.51	0.0000	765
F-test	(23, 27017)	37.4567	0.0000						

4.3.3.2. Profitability

Table 4.5 presents the summary statistics for profitability across countries. The average (median) profitability of the sample is 37.02% (21.97%). The profitability in the U.S. (UK) is 16% (11.6%) (Antoniou et al., 2008). The profitability levels of firms among countries vary between 2.05% and 62.42%. We apply an F test to

examine whether the firms' profitability are different across different countries. We find that the profitability levels of firms demonstrate statistically significant differences among the countries. Firms in Oman have the lowest average profitability, while firms in Bangladesh are the most profitable. The firms in most of the countries have higher levels of profit when compared to the U.S. (UK). Since external funding options are limited in developing countries, firms prefer to keep their profits in the company as an internal funding source.

Table 4.6. Summary Statistics for Size

	Small	Medium	Large	Sale	Asset
India	20%	57%	23%	12.18	12.14
Philippines	27%	54%	19%	12.99	12.58
South Africa	27%	60%	13%	15.24	14.67
Sri Lanka	30%	42%	28%	13.13	13.11
Indonesia	30%	39%	31%	13.97	13.85
Zambia	31%	59%	10%	13.50	13.22
Bangladesh	32%	55%	14%	13.37	12.69
Malawi	42%	48%	10%	13.45	13.12
Morocco	45%	50%	5%	13.83	13.85
Brazil	53%	42%	5%	13.70	13.19
Chile	56%	37%	7%	7.57	7.55
Ecuador	58%	40%	2%	13.54	13.31
Tanzania	59%	37%	4%	12.75	13.03
El Salvador	62%	33%	5%	15.29	15.15
Peru	66%	31%	4%	13.71	13.54
Guatemala	66%	29%	5%	12.77	12.64
Honduras	69%	24%	7%	12.24	12.13
Oman	70%	30%	0%	14.68	16.00
Pakistan	76%	23%	2%	12.52	12.56
Ethiopia	76%	18%	6%	10.88	11.44
Nicaragua	82%	16%	2%	11.54	11.50
Guyana	84%	15%	1%	12.16	12.71
Cambodia	91%	6%	3%	8.48	8.69
Syria	98%	2%	0%	12.56	13.18

4.3.3.3. Size

We use a size dummy variable for small and large firms based on the firms' number of employees. A firm is classified as small if it has less than 50 employees and large if it has more than 500 employees. According to this classification, 48% of the firms in our sample are small firms, while only 11% of them are large firms. Medium size firms account for 41%. The number of small firms varies between 20% and 98% among the sample. India has the lowest number of small firms compared to the total number of firms in India. Syria has the highest number of small firms with 98%. When we look at large companies, the range for large companies is 0%-31%. The sample for Oman and Syria does not include any large companies, while Indonesia, with 31%, has the highest number of large firms. Table 4.6 also presents the size measure based on a logarithm of sales and assets across countries.

4.3.4. Economic environment variables

This section explains the descriptive statistics for the economic environment variables. We also do an F-test to analyze whether the variations in economic environment variables are statistically significant across countries.

4.3.4.1. GDP per Capita

Table 4.7 demonstrates the descriptive statistics for GDP per capita across countries. The average (median) GDP per capita for our sample is $1,698 ($996). The average GDP per capita among the countries differs between $126 and $8,694. We apply an F-test to investigate whether the differences in GDP per capita among countries are statistically significant. We confirm that GDP per capita is different among the

countries. The richest country in the sample is Oman in 2002 with $8,962, while the poorest country is Ethiopia in 1999 with $121. In the same period, the average GDP per capita in the U.S. (UK) is $34,852 ($25,359). As can be seen from these figures, there is a great wealth difference between even the richest country in the sample and developed countries.

Table 4.7. Summary Statistics for GDP per capita

GDP/Cap	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	1698	996	8962	121	1.2707	4.1841	9084.66	0.0000	27738
Ethiopia	126	124	131	121	0.2414	1.4160	124.66	0.0000	1091
Malawi	136	138	138	134	-0.0773	1.0060	38.83	0.0000	233
Tanzania	278	278	290	268	0.2844	1.6341	32.38	0.0000	355
Cambodia	311	317	317	303	-0.1218	1.0148	30.17	0.0000	181
Zambia	312	310	318	306	0.2730	1.3924	47.44	0.0000	395
Bangladesh	338	338	349	325	-0.1566	1.5480	71.70	0.0000	780
India	456	453	469	443	0.0713	1.4870	372.23	0.0000	3868
Pakistan	531	533	535	526	-0.5450	1.5362	383.60	0.0000	2764
Nicaragua	777	777	782	771	-0.4378	2.5108	31.72	0.0000	757
Indonesia	823	818	844	800	0.0378	1.4383	146.87	0.0000	1442
Sri Lanka	887	879	920	858	0.3081	1.4594	107.60	0.0000	938
Guyana	994	988	1000	988	0.0073	1.0001	45.50	0.0000	273
Philippines	1001	996	1015	992	0.6426	1.5076	301.28	0.0000	1864
Honduras	1166	1175	1175	1147	-0.4951	1.4498	101.08	0.0000	717
Syria	1197	1200	1214	1170	-0.5563	1.6331	20.71	0.0000	160
Ecuador	1348	1347	1387	1295	-0.3343	1.6074	75.17	0.0000	756
Morocco	1426	1411	1480	1383	0.4303	1.4750	256.31	0.0000	2006
Guatemala	1730	1739	1739	1716	-0.3879	1.1654	124.15	0.0000	751
Peru	2059	2054	2077	2044	0.3533	1.4605	23.07	0.0000	193
El Salvador	2130	2139	2139	2120	-0.1467	1.0356	111.12	0.0000	676
South Africa	3068	3046	3128	3020	0.3877	1.3411	191.40	0.0000	1370
Brazil	3712	3700	3738	3695	0.6363	1.4538	707.17	0.0000	4232
Chile	5145	5215	5215	5074	-0.0100	1.0001	298.83	0.0000	1793
Oman	8694	8800	8961	8271	-0.6622	1.6561	21.21	0.0000	143
F-test	(23, 27714)	2571086	0.0000						

4.3.4.2. Growth

In table 4.8, we demonstrate the summary statistics for the growth rate. The growth rate of GDP is 3.26%, on average, and the median is 3.0%, while the growth rate is

1.75% (2.40%) in the U.S. (UK). The average growth rate varies 0.40%-7.40%. By applying an F-test, we confirm that the differences in the growth rate across countries are statistically significant. The majority of the countries in the sample have higher growth rates when compared to the U.S. Only Indonesia, Malawi, Guyana, and Ecuador grow more slowly than the U.S. The fastest growing country in the sample is Cambodia in 2001 at 8.04% and the slowest growing country is Indonesia in 2002 with 0.15% growth.

Table 4.8. Summary Statistics for Growth

Growth	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.0326	0.0307	0.0804	0.0015	0.3157	2.7672	523.51	0.0000	27738
Indonesia	0.0041	0.0019	0.0099	0.0015	0.8975	1.8151	277.96	0.0000	1442
Malawi	0.0057	0.0083	0.0083	0.0030	-0.0773	1.0060	38.83	0.0000	233
Guyana	0.0071	0.0078	0.0078	0.0064	-0.0073	1.0001	45.50	0.0000	273
Ecuador	0.0145	0.0160	0.0164	0.0101	-0.9301	1.8817	148.39	0.0000	756
Brazil	0.0185	0.0185	0.0201	0.0171	0.0752	1.5029	399.21	0.0000	4232
Zambia	0.0231	0.0243	0.0284	0.0156	-0.5403	1.6962	47.20	0.0000	395
Chile	0.0257	0.0264	0.0264	0.0250	-0.0100	1.0001	298.83	0.0000	1793
Syria	0.0264	0.0251	0.0294	0.0235	0.1906	1.2290	21.88	0.0000	160
South Africa	0.0265	0.0269	0.0280	0.0248	-0.3527	1.5551	147.59	0.0000	1370
Peru	0.0270	0.0252	0.0365	0.0206	0.5970	1.6795	25.49	0.0000	193
Honduras	0.0277	0.0265	0.0307	0.0265	0.7107	1.9877	90.98	0.0000	717
El Salvador	0.0286	0.0268	0.0306	0.0268	0.1364	1.0186	112.68	0.0000	676
Pakistan	0.0312	0.0327	0.0341	0.0269	-0.5720	1.4662	421.67	0.0000	2764
Philippines	0.0337	0.0315	0.0396	0.0300	0.6495	1.5079	303.96	0.0000	1864
Morocco	0.0372	0.0386	0.0418	0.0307	-0.5290	1.5729	263.78	0.0000	2006
Sri Lanka	0.0372	0.0373	0.0397	0.0348	0.0103	1.5296	84.51	0.0000	938
Oman	0.0377	0.0359	0.0429	0.0340	0.5293	1.4539	20.92	0.0000	143
Guatemala	0.0379	0.0373	0.0395	0.0373	0.9524	2.3359	127.33	0.0000	751
Nicaragua	0.0412	0.0371	0.0503	0.0371	0.8021	2.1848	102.14	0.0000	757
Ethiopia	0.0437	0.0467	0.0468	0.0384	-0.5737	1.3296	186.68	0.0000	1091
Tanzania	0.0452	0.0442	0.0516	0.0408	0.5850	1.7331	43.99	0.0000	355
Bangladesh	0.0519	0.0521	0.0534	0.0501	-0.3389	1.5807	80.40	0.0000	780
India	0.0584	0.0584	0.0655	0.0538	0.5323	1.8877	382.02	0.0000	3868
Cambodia	0.0724	0.0654	0.0804	0.0654	0.1218	1.0148	30.17	0.0000	181
F-test	(23, 27714)	24993.1	0.0000						

Table 4.9. Summary Statistics for Inflation

Inflation	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.0695	0.0620	0.3082	-0.0704	0.3157	2.7672	20015.14	0.0000	27738
Ethiopia	0.0040	0.0066	0.0688	-0.0575	0.0407	1.4448	110.24	0.0000	1091
Morocco	0.0090	0.0079	0.0115	0.0075	0.6412	1.4523	337.67	0.0000	2006
Cambodia	0.0162	0.0071	0.0264	0.0071	0.1218	1.0148	30.17	0.0000	181
El Salvador	0.0219	0.0121	0.0340	0.0121	0.1544	1.0466	110.16	0.0000	676
Bangladesh	0.0263	0.0186	0.0466	0.0159	0.7977	1.6684	140.35	0.0000	780
Peru	0.0296	0.0366	0.0394	0.0143	-0.5864	1.3878	31.96	0.0000	193
India	0.0341	0.0353	0.0380	0.0303	-0.1507	1.4401	406.82	0.0000	3868
Oman	0.0366	-0.0067	0.1998	-0.0658	0.6783	1.6611	21.64	0.0000	143
Guatemala	0.0425	0.0645	0.0683	-0.0408	-1.3783	2.9064	238.05	0.0000	751
Syria	0.0445	0.0456	0.0970	0.0054	0.3412	1.5279	17.55	0.0002	160
Guyana	0.0500	0.0549	0.0549	0.0451	-0.0073	1.0001	45.50	0.0000	273
Chile	0.0520	0.0623	0.0623	0.0417	-0.0100	1.0001	298.83	0.0000	1793
Nicaragua	0.0525	0.0325	0.0857	0.0325	0.3359	1.2590	109.84	0.0000	757
Philippines	0.0575	0.0634	0.0638	0.0450	-0.7121	1.5085	330.33	0.0000	1864
Tanzania	0.0703	0.0717	0.0749	0.0630	-0.6777	1.7653	49.72	0.0000	355
Brazil	0.0862	0.0896	0.1061	0.0620	-0.3247	1.5201	460.56	0.0000	4232
South Africa	0.0907	0.0881	0.1052	0.0767	0.1318	1.3992	150.24	0.0000	1370
Honduras	0.0911	0.0513	0.3082	0.0513	2.2066	6.0763	864.58	0.0000	717
Sri Lanka	0.1009	0.1181	0.1366	0.0515	-0.5163	1.4320	137.77	0.0000	938
Ecuador	0.1150	0.1240	0.2661	-0.0704	-0.3019	1.6840	66.03	0.0000	756
Malawi	0.1174	0.1451	0.1451	0.0875	-0.0773	1.0060	38.83	0.0000	233
Pakistan	0.1291	0.0789	0.2489	0.0586	0.6743	1.4962	469.91	0.0000	2764
Indonesia	0.1292	0.1430	0.2045	0.0590	-0.0250	1.4437	145.68	0.0000	1442
Zambia	0.2536	0.2431	0.3004	0.2135	0.3359	1.5154	43.70	0.0000	395
F-test	(23, 27714)	1245.64	0.0000						

4.3.4.3. Inflation

As shown in table 4.9, the average (median) inflation of the countries in the sample is 6.95% (6.20%); whereas, the rate is 2.13% (2.41%) in the U.S. (UK). The average inflation varies between 0.40% and 25.36% in the sample. We examine whether this variation of the inflation rate is statistically significant. By applying an F-test, we find that the differences in the inflation rate across countries are statistically

significant. Ethiopia has the lowest average rate of inflation, while Zambia has the highest average inflation rate. The majority of the countries have higher inflation rates when compared to the U.S. Only Ethiopia, Morocco, and Cambodia have lower rates than the U.S. The highest inflation is 30.82% for Honduras in 2000, while the lowest rate is -7.04% for Ecuador in 2000. The high inflation makes debt financing costly for the firms in developing countries.

4.3.4.4. Interest rate

Table 4.10 demonstrates the descriptive statistics for interest rate. The mean (median) of interest is 21.27% (13.69%). In contract, the interest rate falls to 6.2% (4.75%) for the U.S. (UK). All of the countries in the sample have higher interest rates than developed countries. The average interest rate changes between 6.96% and 18.67%. We test the significance of the difference by applying an F-test including all countries in the sample. We confirm that the difference is statistically significant. Chile has the lowest interest rate, while Brazil has the highest interest rate. The highest interest rate is 62.88% percent for Brazil in 2002 and the lowest is 6.18% percent for Chile in 2003.[9] The higher the interest rate, the more costs firms must pay for debt financing in developing countries. As such, the cost of borrowing is higher for firms in developing countries than in developed countries.

[9] High inflation due to financial crisis causes interest rates to increase in Brazil.

Table 4.10. Summary Statistics for Interest rate

Interest	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.2127	0.1369	0.6288	0.0618	1.6164	3.9653	13155.81	0.0000	27738
Chile	0.0696	0.0618	0.0776	0.0618	0.0100	1.0001	298.83	0.0000	1793
El Salvador	0.0849	0.0714	0.1074	0.0714	0.3322	1.3618	88.02	0.0000	676
Syria	0.0900	0.0900	0.0900	0.0900	NA	NA	NA	NA	160
Oman	0.0925	0.0923	0.1006	0.0855	0.1951	1.5541	13.37	0.0013	143
Ethiopia	0.1079	0.1087	0.1089	0.1058	-0.8155	1.6952	198.33	0.0000	1091
Philippines	0.1082	0.1091	0.1240	0.0914	-0.1090	1.4991	178.65	0.0000	1864
India	0.1227	0.1229	0.1254	0.1208	0.3647	1.7698	329.63	0.0000	3868
Morocco	0.1297	0.1313	0.1325	0.1256	-0.5854	1.4626	312.11	0.0000	2006
Pakistan	0.1386	0.1369	0.1451	0.1341	0.5532	1.5366	387.61	0.0000	2764
Sri Lanka	0.1417	0.1317	0.1939	0.1034	0.4847	1.5711	116.53	0.0000	938
South Africa	0.1472	0.1450	0.1575	0.1377	0.1935	1.3847	157.49	0.0000	1370
Bangladesh	0.1519	0.1550	0.1583	0.1413	-0.7044	1.6500	123.73	0.0000	780
Ecuador	0.1555	0.1546	0.1626	0.1508	0.6012	1.7331	96.10	0.0000	756
Guyana	0.1566	0.1499	0.1633	0.1499	0.0073	1.0001	45.50	0.0000	273
Cambodia	0.1636	0.1623	0.1650	0.1623	0.1218	1.0148	30.17	0.0000	181
Guatemala	0.1809	0.1686	0.2088	0.1686	0.7998	2.0281	109.63	0.0000	751
Nicaragua	0.1834	0.1830	0.1855	0.1814	0.4657	2.0434	56.23	0.0000	757
Indonesia	0.1867	0.1855	0.1895	0.1846	0.4139	1.2842	218.04	0.0000	1442
Tanzania	0.1961	0.2026	0.2158	0.1643	-0.7014	1.7737	51.35	0.0000	355
Honduras	0.2351	0.2269	0.2682	0.2269	1.7885	4.9182	492.19	0.0000	717
Peru	0.2975	0.3000	0.3506	0.2498	0.0998	1.5453	17.34	0.0002	193
Zambia	0.4204	0.4052	0.4623	0.3880	0.4202	1.3366	57.16	0.0000	395
Malawi	0.4264	0.3683	0.4892	0.3683	0.0773	1.0060	38.83	0.0000	233
Brazil	0.5915	0.5762	0.6288	0.5683	0.6279	1.4545	699.23	0.0000	4232
F-test	(23, 27714)	131823	0.0000						

4.3.4.5. Tax

Table 4.11 reports the summary statistics for tax. The average (median) corporate income tax rate is 29.64% (30%). The tax rate in the U.S. (UK) is 35% (30%). The tax rate varies between 12% and 45%. We conduct an F-test to analyse the difference in tax rates among the countries and conclude that the alterations in the tax rate across countries is statistically significant. Oman has the lowest tax rate, while Guyana has the highest. Bangladesh, Morocco, Syria, and Zambia have the same tax rate as the U.S. Alternatively, India, Pakistan, and Guyana have higher tax rates and the rest of the countries have lower rates when compared to the U.S.

Table 4.11. Summary Statistics for Tax

Tax	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.2964	0.3000	0.4500	0.1200	-0.3499	2.0298	1654.04	0.0000	27738
Oman	0.1200	0.1200	0.1200	0.1200	NA	NA	NA	NA	143
Brazil	0.1500	0.1500	0.1500	0.1500	NA	NA	NA	NA	4232
Chile	0.1625	0.1650	0.1650	0.1600	-0.0100	1.0001	298.83	0.0000	1793
Cambodia	0.2000	0.2000	0.2000	0.2000	NA	NA	NA	NA	181
Ecuador	0.2500	0.2500	0.2500	0.2500	NA	NA	NA	NA	756
El Salvador	0.2500	0.2500	0.2500	0.2500	NA	NA	NA	NA	676
Honduras	0.2500	0.2500	0.2500	0.2500	NA	NA	NA	NA	717
Nicaragua	0.2500	0.2500	0.2500	0.2500	NA	NA	NA	NA	757
Ethiopia	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	1091
Indonesia	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	1442
Malawi	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	233
Peru	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	193
South Africa	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	1370
Tanzania	0.3000	0.3000	0.3000	0.3000	NA	NA	NA	NA	355
Guatemala	0.3100	0.3100	0.3100	0.3100	NA	NA	NA	NA	751
Philippines	0.3200	0.3200	0.3200	0.3200	NA	NA	NA	NA	1864
Sri Lanka	0.3327	0.3500	0.3500	0.3000	-0.6452	1.4163	163.11	0.0000	938
Bangladesh	0.3500	0.3500	0.3500	0.3500	NA	NA	NA	NA	780
Morocco	0.3500	0.3500	0.3500	0.3500	NA	NA	NA	NA	2006
Syria	0.3500	0.3500	0.3500	0.3500	NA	NA	NA	NA	160
Zambia	0.3500	0.3500	0.3500	0.3500	NA	NA	NA	NA	395
India	0.3844	0.3955	0.3960	0.3500	-1.1719	2.3740	948.50	0.0000	3868
Pakistan	0.4300	0.4300	0.4300	0.4300	NA	NA	NA	NA	2764
Guyana	0.4500	0.4500	0.4500	0.4500	NA	NA	NA	NA	273
F-test	(23, 27714)	137073	0.0000						

4.3.5. Financial Environment variables

This section presents the descriptive statistics of financial environment variables. As economic environment variables, we apply an F-test to see whether the financial environment across countries demonstrates any statistical significant difference. We will first discuss corruption and legal system. Next, we focus on the financial institutions, concluding with the examination of financial globalization.

Table 4.12. Summary Statistics for Corruption

Corruption	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	-0.3030	-0.4179	1.5075	-1.1274	1.3136	4.8917	12113.04	0.0000	27738
Tanzania	-1.0674	-1.0644	-1.0149	-1.1139	0.1063	1.5796	30.51	0.0000	355
Indonesia	-1.0615	-1.0555	-0.9835	-1.1274	0.1564	1.5190	137.67	0.0000	1442
Bangladesh	-0.9735	-1.0007	-0.8666	-1.0426	0.6440	1.6383	114.18	0.0000	780
Ecuador	-0.9733	-0.9667	-0.8985	-1.0349	0.1783	1.5334	71.76	0.0000	756
Cambodia	-0.9640	-0.9754	-0.9510	-0.9754	0.1218	1.0148	30.17	0.0000	181
Zambia	-0.9427	-0.9390	-0.9275	-0.9585	-0.1763	1.4248	42.89	0.0000	395
Malawi	-0.7906	-0.7610	-0.7610	-0.8225	-0.0773	1.0060	38.83	0.0000	233
Honduras	-0.7885	-0.8126	-0.7225	-0.8126	0.9348	2.5735	109.87	0.0000	717
Pakistan	-0.7550	-0.7682	-0.7230	-0.7741	0.6695	1.4963	466.93	0.0000	2764
Nicaragua	-0.6403	-0.5173	-0.5173	-0.9162	-0.7705	2.1214	99.26	0.0000	757
Guatemala	-0.6081	-0.6269	-0.5642	-0.6269	0.8395	2.1089	113.06	0.0000	751
Philippines	-0.5326	-0.5326	-0.5170	-0.5482	0.0000	1.5057	173.44	0.0000	1864
Ethiopia	-0.4742	-0.4767	-0.4493	-0.4980	0.1267	1.5514	98.31	0.0000	1091
Syria	-0.4655	-0.4863	-0.3010	-0.6717	-0.2137	1.4609	17.01	0.0002	160
Guyana	-0.4273	-0.4140	-0.4140	-0.4407	-0.0073	1.0001	45.50	0.0000	273
El Salvador	-0.4052	-0.4404	-0.3304	-0.4404	0.7070	2.0586	81.28	0.0000	676
India	-0.3938	-0.3959	-0.3538	-0.4179	0.6897	2.0024	467.08	0.0000	3868
Peru	-0.2190	-0.2108	-0.2060	-0.2437	-0.8207	1.7430	34.37	0.0000	193
Sri Lanka	-0.1576	-0.1610	-0.1443	-0.1666	0.5963	1.5870	133.61	0.0000	938
Morocco	-0.0661	-0.0804	-0.0061	-0.1081	0.5519	1.5760	271.33	0.0000	2006
Brazil	0.0076	0.0092	0.1155	-0.0972	0.0261	1.4995	397.50	0.0000	4232
South Africa	0.4113	0.4180	0.5218	0.3142	0.1201	1.5033	131.16	0.0000	1370
Oman	0.8745	0.8708	0.9601	0.7815	-0.0766	1.5292	13.03	0.0015	143
Chile	1.3532	1.2004	1.5075	1.2004	0.0100	1.0001	298.83	0.0000	1793
F-test	(23, 27714)	88014	0.0000						

4.3.5.1. Corruption

Corruption is scaled ranging from about -2.5 to 2.5. Higher values mean better governance. Table 4.12 demonstrates the descriptive statistics for corruption across countries. The mean (median) of corruption is -0.30 (-0.42) in our sample. The range of average corruption among countries is -1.07 to 1.35. By applying an F-test, we confirm the difference is statistically significant. The most corrupt country is Tanzania and the least corrupt country is Chile. In contrast, the value of corruption in the U.S. (UK) is 1.75 (2.06). Corruption seems to be a problem for the countries

in our sample. None of them are close to the U.S. This corrupt environment increases the costs of external financing. High corruption may be another reason for the low leverage and debt maturity of firms in our sample. The most corrupt country, with -1.13 in the sample, is Indonesia, while the least corrupt country is Chile with 1.51.

Table 4.13. Summary Statistics for Legal System

	Civil	Common
All	60%	40%
Bangladesh		Yes
Brazil	Yes	
Cambodia	Yes	
Chile	Yes	
Ecuador	Yes	
El Salvador	Yes	
Ethiopia	Yes	
Guatemala	Yes	
Guyana		Yes
Honduras	Yes	
India		Yes
Indonesia	Yes	
Malawi		Yes
Morocco	Yes	
Nicaragua	Yes	
Oman	Yes	
Pakistan		Yes
Peru	Yes	
Philippines	Yes	
South Africa		Yes
Sri Lanka		Yes
Syria	Yes	
Tanzania		Yes
Zambia		Yes

4.3.5.2. Legal system

The majority of the countries in the sample (60%) embrace a civil law legal system, while 40% are common law countries. Table 4.13 demonstrates whether the country

is based on civil law or common law legal systems. We expect that firms in civil law countries use more debt; specifically, short-term debt when compared to firms in common law countries. That might be the reason why the firms in our sample have more short-term debt than long-term debt.

4.3.5.3. Financial institutions

This section explains the three proxies for financial institutions. We, first discuss deposit money bank assets to central bank assets. Next, we will focus on the stock market dummy and stock market turnover, respectively.

Table 4.14. Summary Statistics for Deposit money bank assets to central bank assets

Dbacba	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.6215	0.7500	0.9984	0.0036	-0.8990	2.1359	4599.64	0.0000	27738
Brazil	0.0076	0.0088	0.0103	0.0036	-0.6020	1.5385	632.24	0.0000	4232
Chile	0.0275	0.0300	0.0300	0.0249	-0.0100	1.0001	298.83	0.0000	1793
Zambia	0.1652	0.1514	0.1951	0.1446	0.5097	1.3151	63.82	0.0000	395
Nicaragua	0.2507	0.2334	0.3700	0.2101	1.5980	3.7853	341.63	0.0000	757
Syria	0.5434	0.5480	0.5514	0.5345	-0.2662	1.1841	23.87	0.0000	160
Malawi	0.5778	0.5677	0.5887	0.5677	0.0773	1.0060	38.83	0.0000	233
Ethiopia	0.6046	0.6212	0.6261	0.5666	-0.7011	1.5166	189.40	0.0000	1091
Guyana	0.6639	0.6636	0.6643	0.6636	0.0073	1.0001	45.50	0.0000	273
Pakistan	0.6963	0.6773	0.7409	0.6696	0.6484	1.4620	466.08	0.0000	2764
Guatemala	0.7110	0.7206	0.7206	0.6888	-0.8561	2.0761	118.44	0.0000	751
Indonesia	0.7130	0.7061	0.7500	0.6902	0.6748	1.7303	206.30	0.0000	1442
Tanzania	0.7413	0.7138	0.8228	0.7024	0.8970	1.8447	67.35	0.0000	355
Cambodia	0.7910	0.8037	0.8037	0.7766	-0.1218	1.0148	30.17	0.0000	181
Ecuador	0.8179	0.8301	0.8338	0.7834	-0.9252	1.8800	147.38	0.0000	756
India	0.8567	0.8593	0.8733	0.8275	-0.7862	2.0744	536.56	0.0000	3868
Honduras	0.8819	0.8693	0.9699	0.8693	2.3180	6.3759	982.55	0.0000	717
Sri Lanka	0.8883	0.8811	0.9151	0.8667	0.3954	1.4477	118.62	0.0000	938
El Salvador	0.8914	0.8884	0.9018	0.8884	1.5632	3.6711	287.99	0.0000	676
Bangladesh	0.8937	0.8930	0.8967	0.8914	0.4119	1.4411	101.04	0.0000	780
Philippines	0.9092	0.9062	0.9220	0.8993	0.4341	1.4887	235.94	0.0000	1864
Morocco	0.9456	0.9460	0.9463	0.9445	-0.5702	1.4609	306.70	0.0000	2006
South Africa	0.9663	0.9843	0.9882	0.9321	-0.5307	1.2963	230.00	0.0000	1370
Oman	0.9892	0.9925	0.9984	0.9775	-0.4339	1.4660	18.51	0.0001	143
Peru	0.9917	0.9921	0.9925	0.9903	-0.7350	1.7185	30.58	0.0000	193
F-test	(23, 27714)	346807	0.0000						

4.3.5.3.1. Deposit money bank assets to central bank assets

Table 4.14 illustrates the summary statistics for deposit money bank assets to central bank assets across countries. The mean (median) of deposit money bank assets to central bank assets is 62.15% (75%). Financial development varies between 0.76 and 99.17 among countries in the sample. By conducting an F-test, we find that the alterations among countries are statistically significant. The least financially developed country is Brazil, while the most financially developed country is Peru, on average. For the U.S. (UK), this ratio is 91.21% (98.35%). The most financially developed country is Oman in 2000 with 99.84% and the least financially developed country is Brazil in 2000 with 0.36%. If the deposit money banks in a country have a larger role in the banking system than central bank, it indicates that the country has higher levels of financial development (Beck et al., 2009). Our sample includes financially developed countries, but if we look at the average, it seems that most of the countries in the sample are not financially developed.

4.3.5.3.2. Stock market dummy

All countries in the sample do not have a stock market. Table 4.15 presents the results for stock market. If a country has a stock market, it is shown as 'yes', if a country does not have a stock market, it is presented as 'no'. Eleven percent of the countries in the sample do not have either a stock market or an active stock market, while 89% of the countries have an active stock market. Based on the sample, the countries that do not have a stock market are Cambodia, Ethiopia, Guyana, and Syria.[10] The countries without an active stock market are Honduras and Nicaragua.

[10] The stock market in Guyana opened in 2003.

Approximately 14% of the firms (11% of the observations) in the sample are operating in countries without a stock market.

Table 4.15. Summary Statistics for Stock Market

Country	*Stockmrk*
All	89%
Cambodia	No
Ethiopia	No
Honduras	No
Nicaragua	No
Syria	No
Guyana	Yes
Bangladesh	Yes
Brazil	Yes
Chile	Yes
Ecuador	Yes
El Salvador	Yes
Guatemala	Yes
India	Yes
Indonesia	Yes
Malawi	Yes
Morocco	Yes
Oman	Yes
Pakistan	Yes
Peru	Yes
Philippines	Yes
South Africa	Yes
Sri Lanka	Yes
Tanzania	Yes
Zambia	Yes

4.3.5.3.3. Stock market turnover

Table 4.16 demonstrates the summary statistics for stock market turnover. The mean (median) of stock market turnover is 0.97 (0.16). The stock market turnover changes from 0 to 3.52 among the countries. By applying an F-test, we find the difference is statistically significant. Guyana has the lowest turnover. Pakistan has the highest stock market turnover on average. Stock market turnover in the U .S.(UK) is 1.65

(0.88). The country with the highest turnover is Pakistan in 2000 with 5.01, while the country with lowest turnover is Guyana in 2003 with 0.0001. In the U.S. (UK), stock market turnover is 1.65 (0.88). Guatemala, India, and Pakistan have higher stock market turnover when compared to the U.S. High turnover is an indicator of low transaction costs (Levine and Zervos, 1998). Therefore, the higher the turnover, the more active and liquid the stock market is. It seems that some of the stock markets in the sample are illiquid.

Table 4.16. Summary Statistics for Stock Market Turnover

Turnover	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.8681	0.1179	5.0102	0.0000	1.6086	4.4969	14552.07	0.0000	27738
Guyana	0.0001	0.0001	0.0001	0.0000	-0.0073	1.0001	45.50	0.0000	273
Ecuador	0.0110	0.0110	0.0156	0.0068	0.1375	1.6443	60.27	0.0000	756
El Salvador	0.0157	0.0159	0.0173	0.0125	-1.0959	3.0918	135.54	0.0000	676
Malawi	0.0667	0.0391	0.0965	0.0391	0.0773	1.0060	38.83	0.0000	233
Chile	0.0675	0.0884	0.0884	0.0464	-0.0100	1.0001	298.83	0.0000	1793
Tanzania	0.0752	0.0269	0.1722	0.0201	0.6277	1.4003	61.16	0.0000	355
Morocco	0.0754	0.0683	0.1071	0.0527	0.5252	1.5729	262.43	0.0000	2006
Zambia	0.1009	0.0430	0.2090	0.0339	0.5456	1.3058	66.84	0.0000	395
Brazil	0.1230	0.1179	0.1572	0.0953	0.3436	1.5213	468.81	0.0000	4232
Peru	0.1282	0.1440	0.1709	0.0763	-0.3905	1.4276	24.79	0.0000	193
Oman	0.1537	0.1596	0.1697	0.1328	-0.4330	1.4183	19.37	0.0001	143
Philippines	0.1567	0.0795	0.3157	0.0758	0.7125	1.5085	330.49	0.0000	1864
Sri Lanka	0.1984	0.1892	0.2837	0.1152	0.0963	1.4884	90.75	0.0000	938
South Africa	0.4355	0.4270	0.4986	0.3781	0.2168	1.5640	128.45	0.0000	1370
Indonesia	0.4590	0.4349	0.5333	0.4202	0.8510	1.8002	260.53	0.0000	1442
Bangladesh	0.7292	0.6475	0.9111	0.6472	0.8203	1.6730	144.72	0.0000	780
Guatemala	1.8288	3.0700	3.0700	0.0167	-0.3767	1.1419	125.79	0.0000	751
India	2.5188	2.2582	3.4432	1.5104	0.0795	1.4864	373.31	0.0000	3868
Pakistan	3.5157	3.0234	5.0102	2.5192	0.5905	1.4956	421.28	0.0000	2764
F-test	(23, 27714)	6879.7	0.0000						

4.3.5.4. Financial globalization

This section discusses the two proxies for financial globalization. First, offshore bank loans to GDP will be explained and then offshore deposits to domestic deposits will be discussed.

4.3.5.4.1. Offshore bank loans to GDP

As illustrated in table 4.17, the mean (median) of the ratio of offshore bank loans to GDP is 8.54% (7.80%). The ratio varies between 0.78% and 20.26% across countries. By applying an F-test, we confirm the statistical significance of the difference. Ethiopia has the lowest offshore bank loans, while Indonesia has the highest. In the U.S. (UK), this ratio is 16.10% (99.40%). With the exception of Nicaragua, the Philippines, Oman, and Indonesia, all other countries have lower offshore bank loans when compared to the U.S. As income levels of the countries increase, international loans also rise; therefore, offshore banks provide more loans to high income countries than low income countries. Since our sample includes middle and low income countries, the average is very low when compared to the U.S. (UK). Therefore, it is difficult for firms in lower income countries to find funding from offshore banks. The country with highest offshore bank loans is Indonesia in 2000 with 24.80% and the country with lowest offshore bank loans is Ethiopia in 2001 with 0.01%.

Table 4.17. Summary Statistics for Offshore Bank Loans to GDP

Nrbloan	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.0854	0.0780	0.2840	0.0051	0.4568	2.2996	1531.77	0.0000	27738
Ethiopia	0.0078	0.0069	0.0119	0.0051	0.6245	1.6471	154.12	0.0000	1091
Bangladesh	0.0086	0.0088	0.0095	0.0073	-0.4706	1.6051	92.02	0.0000	780
Cambodia	0.0110	0.0107	0.0113	0.0107	0.1218	1.0148	30.17	0.0000	181
Brazil	0.0137	0.0146	0.0152	0.0114	-0.6058	1.4560	679.26	0.0000	4232
Syria	0.0238	0.0231	0.0269	0.0220	0.7324	1.7101	25.40	0.0000	160
Malawi	0.0322	0.0255	0.0394	0.0255	0.0773	1.0060	38.83	0.0000	233
Zambia	0.0335	0.0296	0.0434	0.0292	0.8909	1.7963	76.10	0.0000	395
Tanzania	0.0389	0.0413	0.0440	0.0317	-0.5145	1.4098	53.06	0.0000	355
India	0.0407	0.0424	0.0451	0.0362	-0.2483	1.3849	460.18	0.0000	3868
Sri Lanka	0.0533	0.0511	0.0581	0.0509	0.7813	1.6130	170.61	0.0000	938
Guyana	0.0607	0.0529	0.0685	0.0529	0.0073	1.0001	45.50	0.0000	273
Ecuador	0.0827	0.0693	0.1162	0.0690	0.9414	1.8864	150.73	0.0000	756
Pakistan	0.0934	0.0918	0.1112	0.0780	0.2212	1.5144	276.71	0.0000	2764
Honduras	0.1053	0.1032	0.1291	0.0994	2.1567	5.9813	821.37	0.0000	717
Peru	0.1134	0.1120	0.1328	0.0982	0.3547	1.6126	19.53	0.0001	193
Guatemala	0.1140	0.1144	0.1244	0.1010	-0.4112	2.5591	27.25	0.0000	751
South Africa	0.1218	0.1219	0.1321	0.1091	-0.2565	1.5465	135.63	0.0000	1370
Chile	0.1230	0.1329	0.1329	0.1130	-0.0100	1.0001	298.83	0.0000	1793
Morocco	0.1316	0.1331	0.1491	0.1138	-0.0779	1.5076	188.19	0.0000	2006
El Salvador	0.1328	0.1349	0.1349	0.1302	-0.1500	1.0399	110.76	0.0000	676
Nicaragua	0.1669	0.1776	0.1776	0.1423	-0.8186	2.2180	103.84	0.0000	757
Philippines	0.1827	0.1803	0.1899	0.1778	0.5727	1.4859	279.97	0.0000	1864
Oman	0.1841	0.1855	0.1922	0.1754	-0.1764	1.4782	14.54	0.0007	143
Indonesia	0.2026	0.2197	0.2480	0.1525	-0.2735	1.3411	183.33	0.0000	1442
F-test	(23, 27714)	27596	0.0000						

4.3.5.4.2. Offshore deposits to domestic deposits

Table 4.18 demonstrates the descriptive statistics for offshore deposits to domestic deposits. The mean (median) of offshore deposit to domestic deposits (Offdep) is 12.23% (6.75%). This ratio alters between 1.19% and 61.68% among the countries in the sample. By conducting an F-test, we confirm the difference is statistically significant. Bangladesh has the lowest offshore deposits as compared to domestic deposits, while Ecuador has the highest average. In the U.S. (UK), this ratio is 10.64% (16.67%). Offshore bank deposits fall with the income level of the country; therefore, this ratio is expected to be higher in low income countries (Beck et al.,

2009). The lack of confidence and trust in the domestic banking system make households and firms prefer offshore banks in those countries. However, it also demonstrates financial globalization. Ecuador, in 2000, has the highest offshore deposits, while Bangladesh, in 2001, has the lowest offshore deposits when compared to domestic deposits.

Table 4.18. Summary Statistics for Offshore Deposits to Domestic Deposits

Offdep	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
All	0.1223	0.0675	0.8346	0.0107	2.5997	10.1293	89987.63	0.0000	27738
Bangladesh	0.0119	0.0124	0.0127	0.0107	-0.5763	1.4348	122.80	0.0000	780
India	0.0254	0.0239	0.0318	0.0227	1.1117	2.3260	869.86	0.0000	3868
Chile	0.0385	0.0396	0.0396	0.0374	-0.0100	1.0001	298.83	0.0000	1793
Indonesia	0.0443	0.0447	0.0462	0.0414	-0.5917	1.6972	186.10	0.0000	1442
Sri Lanka	0.0542	0.0549	0.0562	0.0518	-0.4056	1.4464	120.05	0.0000	938
Ethiopia	0.0563	0.0555	0.0669	0.0474	0.2626	1.5989	101.78	0.0000	1091
El Salvador	0.0588	0.0595	0.0595	0.0577	-0.2572	1.1942	99.31	0.0000	676
Brazil	0.0704	0.0675	0.0765	0.0671	0.6676	1.4519	736.95	0.0000	4232
Honduras	0.0733	0.0625	0.1038	0.0527	0.8292	1.8355	122.68	0.0000	717
Morocco	0.0893	0.0884	0.0921	0.0873	0.5312	1.4570	293.32	0.0000	2006
Philippines	0.0974	0.0985	0.1025	0.0911	-0.3635	1.5035	215.00	0.0000	1864
Cambodia	0.1079	0.0923	0.1255	0.0923	0.1218	1.0148	30.17	0.0000	181
South Africa	0.1107	0.1113	0.1463	0.0669	-0.2641	1.5488	136.13	0.0000	1370
Pakistan	0.1634	0.1679	0.1708	0.1510	-0.6796	1.5426	457.37	0.0000	2764
Syria	0.2020	0.1975	0.2451	0.1737	0.5531	1.6316	20.64	0.0000	160
Peru	0.2038	0.1993	0.2462	0.1602	0.0353	1.5266	17.50	0.0002	193
Guyana	0.2088	0.2075	0.2101	0.2075	0.0073	1.0001	45.50	0.0000	273
Malawi	0.3111	0.2894	0.3346	0.2894	0.0773	1.0060	38.83	0.0000	233
Nicaragua	0.3435	0.2778	0.5286	0.2649	1.0256	2.0610	160.52	0.0000	757
Tanzania	0.3649	0.3661	0.4135	0.3137	-0.0740	1.4118	37.63	0.0000	355
Guatemala	0.4057	0.3534	0.5581	0.3534	1.2477	2.9047	195.13	0.0000	751
Zambia	0.5542	0.6323	0.6446	0.3869	-0.6855	1.4777	69.08	0.0000	395
Oman	0.5971	0.6112	0.6871	0.4807	-0.3975	1.6045	15.37	0.0005	143
Ecuador	0.6168	0.5560	0.8346	0.5061	0.8678	1.8547	136.20	0.0000	756
F-test	(23, 27714)	16137	0.0000						

4.4. Stylized Facts

The purpose of this section is to investigate the impact of size and the existence of a stock market on leverage and debt maturity decisions of firms in developing countries. By applying a univariate analysis, we compare the averages of leverage and debt maturity levels, as well as firm level determinants of small and large firms. Then, we apply the same analysis for privately held and publicly listed companies. Finally, we investigate the impact of the presence of a stock market on the leverage and maturity levels and firm level determinants. We compare our results to those of developed countries. In this section, we will answer the following questions:

- Are the leverage and debt maturity levels of small and large firms different in developing countries?
- Are the leverage and debt maturity levels of listed and privately held companies different in developing countries?
- Does the presence of a stock market have an impact on the leverage and debt maturity levels of firms?

In the following, Section 4.4.1 presents the analysis for leverage levels. Section 4.4.2 looks at the debt maturity levels. Then, we compare the asset tangibility levels of firms and examine the profitability levels of those firms in developing countries.

4.4.1. Leverage[11]

As we demonstrated in the previous section, the firms in our sample are less levered than firms in developed countries. The mean of leverage for all countries in the sample is 39.09%, while in the U.S. (UK), the mean of leverage is around 58% (54%) (Rajan and Zingales, 1995). The reason for this might be the limited availability of funds to finance companies since all of the countries in the sample are developing economies. Additionally, the majority of the firms in the sample are small and privately held firms. Since large and listed firms can provide more reliable information when compared to small and privately held firms, the available funds are generally allocated to large firms or publicly listed companies. For instance, leverage for large listed firms in developing countries varies between 30.3% and 73.4% (Booth et al., 2001). In contrast, the leverage for small firms in the UK is 42.2% (Michaelas et al., 1999). This figure goes up to 61.41% for the small firms in Spain (Sogorb-Mira, 2005). For the other developed countries, Greece, France, Italy, and Portugal, the leverage for small firms varies between 52.78% and 76.44% (Daskalakis and Psillaki, 2008).

Table 4.19 presents the univariate analysis for leverage. The leverage for small firms is 30.65% and rises to 50.48% for large firms in the sample. We employ the univariate analysis to confirm whether this difference in leverage between small and large firms is statistically significant. According to the analysis, the difference is statistically significant and we confirm our hypothesis that small firms are less levered than large firms. Since small firms have information asymmetry and adverse selection problems due to their opaqueness, they have limited access to external

[11] Please refer to table 6 in the appendix for leverage and debt maturity levels of SMEs in developed countries.

sources; therefore, their leverage is lower when compared to large firms.[12] Also, when compared to small firms in developed countries, the firms in our sample are less levered.

Table 4.19. Univariate Analysis for Leverage

Leverage is the ratio of total liabilities to total asset. Small represents the firms that employ less than 50 employees, medium firms have 50-500 employees, and large firms employ more than 500 employees. Private represents the privately held companies and listed is for publicly listed firms. Stockmarket represents the firms in countries with a stock market and without stockmarket reports the firms in countries without stock market. * indicates significance at the 10%, ** presents significance at 5% level, and *** represents significance at the 1% level.

Panel A: Leverage Levels of Firms

Small	Large	t-test
0.3065	0.5048	34.2562***
Small	Medium	t-test
0.3065	0.4597	-41.8051***
Medium	Large	t-test
0.4597	0.5048	7.8335***
Listed	Privately held	t-test
0.4629	0.367	14.4227***

We apply the same statistical analysis for privately held and listed companies. The leverage of privately held companies is 36.70%, while the leverage of listed firms is 46.29%. As we expected privately held companies have lower leverage than listed firms. This difference is statistically significant. As large firms, publicly listed companies are more transparent and they have less information asymmetry and adverse selection problems as compared to privately held companies. Lenders prefer to fund listed companies as the quality of information provided by them is more reliable than privately held firms. Therefore, they have better access to external

[12] We also report the results for medium-sized firms. But our main focus is on the differences between small and large firms. Therefore, we only discuss the results for small and large firms.

funding resulting in higher leverage. Alternatively, the financial environment of a country might trigger higher debt levels in listed firms since raising equity funding might prove difficult. A possible reason may be the limited availability of equity funds due to the lack of developed stock markets (Demirguc-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998). Since some of the countries in the sample do not have either a stock market or an active stock market, the debt financing decisions of those firms might show some differences among countries. For instance, Cambodia, Guyana, and Syria do not have a stock market and firms in those countries have the lowest leverage in the sample.

We conduct a univariate analysis to test whether there is a statistically significant difference between the leverage of the firms in countries with a stock market and in countries without a stock market. Table 4.19 Panel B presents these results. The mean of leverage in the countries with a stock market is 41.27%. The mean of those countries without a stock market is 21.37%. This result indicates that there is a huge difference between firm leverage in countries with a stock market and those without a stock market. This difference is statistically significant. We confirm our hypothesis that firms in countries with a stock market are more levered than the firms in countries without a stock market. Since the stock market is another source for firms to raise financing, its existence increases funding opportunities, as well as sources within the country. Even if the firms in developing countries have lower leverage when compared to firms in developed countries, the presence of an active stock market enable firms to improve their debt levels compared to firms in countries without a stock market.

Panel B: Leverage of Firms with and without Stock Market

	Stockmarket	Without stockmarket	t-test
All	0.4127	0.2137	35.6184***
Small	0.3381	0.1606	27.8122***
Medium	0.4615	0.4216	3.1525***
Large	0.5125	0.3418	7.2005***

We apply the same univariate analysis and compare the small firms in countries with and without a stock market and large firms with and without a stock market. Average leverage for small firms in countries with stock market is 33.81%; however, this ratio falls to 16.06% for small firms in countries without a stock market. Also, the average leverage for large firms in countries with stock market is 51.25%; whereas, it is 34.18% for large firms in countries without stock market. The mean of leverage for large firms in countries with an active stock market is close to the average leverage in developed countries. Therefore, having an active stock market in developing countries is important for firms searching for external financing. Alternatively, even in countries with a stock market, small firms are less levered than large firms. This also confirms the limited financing available for small firms.

Per our previous discussion, small firms have less debt when compared to other firms and they have even lower debt in countries without a stock market. Therefore, it is important to be a large firm in developing countries in order to access external financing.

4.4.2. Debt maturity

For debt maturity, we use three proxies: long-term debt to total assets, short-term debt to total assets, and long-term debt to total debt. As we discussed in the previous section, firms in the sample have shorter maturity as compared to firms in developed countries. In the sample, the mean of long-term debt to total assets is 14.01%, the mean of short-term debt to total assets is 24.94%, and the average of long-term debt to total debt is 32.63%. On the other hand, the average long-term debt to total assets in the U.S. (UK) is 37% (28%) (Rajan and Zingales, 1995). The range for long-term debt to total assets of large listed firms in developing countries is between 9.7% and 49.4% (Booth et al., 2001). Since most of the firms in our sample are small and privately held companies, the average long-term debt to total assets is lower when compared to large listed companies, even in developing countries. The reason for the low long-term debt to total assets in our sample might be the information asymmetry due to the size of the companies. In contrast, the average for long-term debt to total assets for small firms in the UK is 11.9% (Michaelas et al., 1999), while the range for other developed countries is between 2.06% and 28.46% (Hall et al, 2004). Moreover, for short-term debt, the range for developed countries varies between 38.22% and 62.96% (Hall et al., 2004) and for Spain, it is 52.45% (Sogorb-Mira, 2005).

As leverage, we also examine whether the debt maturity decisions indicate differences among different sizes and the presence of a stock market. Table 4.20 demonstrates the univariate analysis for debt maturity. First, we discuss the univariate analysis of long-term debt to total assets. The average long-term debt to total assets for small firms is 9.60%, while it increases to 21.41% for large firms.

This difference is statistically significant and confirms our hypothesis that small firms have lower long-term debt when compared to large firms. As we discussed in the previous section, it is difficult to find debt financing for small firms due to their opaqueness. However, to be financed by long-term debt is much lower when compared to short-term debt. Alternatively, the average long-term debt to total assets for privately held and listed firms is 14.05% and 21.19%, respectively. Listed companies have higher long-term debt to total assets than private companies, in part, due to better information disclosure.

Table 4.20. Univariate Analysis for Debt Maturity

LTD/TA is the ratio of long-term liabilities to total assets. STD/TA is the ratio of short-term liabilities to total assets. LTD/TD presents the ratio of long-term liabilities to total liabilities. Small presents those firms that employ less than 50 employees, medium firms have 50-500 employees, and large firms employ more than 500 employees. Private represents the privately held companies and listed is for publicly listed firms. Stockmarket represents the firms in countries with a stock market and without stockmarket reports those firms in countries without stock market. * reports significance at 10% level, ** presents significance at the 5% level, and *** indicates significance at the 1% level.

Panel A: Long-term Debt to Total Assets

Small	Large	t-test
0.096	0.2141	-31.5683***
Small	Medium	t-test
0.096	0.1716	30.7989***
Medium	Large	t-test
0.1716	0.2141	-9.8788***
Listed	Privately held	t-test
0.2119	0.1405	15.4740***

Underdeveloped financial systems may cause firms in developing countries to have lower long-term debt to total assets since some of the countries in the sample do not have an active stock market. For instance, Cambodia, Syria, and Guyana do not have a stock market and the firms in these countries have the lowest average long-term

debt to total assets. The mean of long-term debt to total assets for firms in countries with stock market is 14.69%, while it is 7.70% for firms in countries without a stock market. The presence of a stock market increases the amount of long-term investment available in the country. Since the existence of stock market aids in boosting the available investment in a country, firms in a country with a stock market can access more long-term debt. We also test whether the small and large firms can acquire longer debt if they are in countries with a stock market than those without a stock market. The average long-term debt to total assets of large firms in countries with a stock market is 21.64%, but the average falls to 15.43% for firms in countries without a stock market. As large firms, small firms in countries with a stock market (10.29%) have higher average long-term debt to total assets than small firms in countries without a stock market (6.09%). Thus, financial institutions are important for firms to access external financing, but size still has a greater impact on long-term borrowing decisions. To conclude, smaller firms and the firms in a country without a stock market have lower levels of long-term debt. Size and access to a stock market play an important role in the long-term borrowing decisions of firms.

Panel B: Long-term Debt to Total Assets for Firms with and without a Stock Market

	Stockmarket	Without Stockmarket	t-test
All	0.1469	0.077	17.2286***
Small	0.1029	0.0609	10.1117***
Medium	0.1727	0.1427	2.8358***
Large	0.2164	0.1543	2.9486***

As long-term debt to total assets, large firms have more short-term debt to total assets than small size firms. The average short-term debt to total assets for small and

large firms is 20.76% and 29.18%. When comparing long-term debt to total assets, short-term debt to total assets is higher for small firms as they have limited access to long-term debt financing. Since the probability of bankruptcy is higher for small firms, lenders may not prefer to provide long-term funding. In contrast, it seems that there is not much difference between privately held and listed firms in terms of short term debt financing. The average short-term debt to total assets for private and listed firms is 22.47% and 24.98%, respectively. Hence, publicly listed firms have longer maturity than privately held firms.

Panel C: Short-term Debt to Total Assets

Small	Large	t-test
0.2076	0.2918	16.9843***
Small	Medium	t-test
0.2076	0.2868	-25.0884***
Medium	Large	t-test
0.2868	0.2918	0.9959
Listed	Privately held	t-test
0.2498	0.2247	4.7074***

Panel D: Short-term debt to total assets for firms with and without stock market

STD/TA	Stockmarket	Without Stockmarket	t-test
All	0.2651	0.1031	32.5063***
Small	0.234	0.0725	28.6908***
Medium	0.2881	0.2485	3.1613***
Large	0.2963	0.1749	5.2150***

As long-term debt to total assets, firms in countries with a stock market have a higher mean of short-term debt to total assets than firms in those countries without a stock market, 26.51% and 10.31%, respectively. The average short-term debt to total assets for large firms in countries with a stock market is 29.63%, while it is 17.49% for large firms in countries without a stock market. For small firms, the mean of

short-term debt to total assets is 23.40% in countries with a stock market and drops significantly to 7.25% in countries without a stock market. Due to information asymmetries, it is hard to access to financing for firms in developing countries. Generally, large firms have a greater advantage since they have access to international financial markets. It seems that presence of an active stock market affects the small firms' debt level more than large firms.

Panel E: Long-term Debt to Total Debt

Small	Large	t-test
0.2808	0.4138	-17.6246***
Small	Medium	t-test
0.2808	0.3494	14.2910***
Medium	Large	t-test
0.3494	0.4138	-9.0023***
Listed	Privately held	t-test
0.42	0.3397	9.5816***

Finally, we employ a univariate analysis for long-term debt to total debt. The average long-term debt to total debt for small firms is 28.08%, while it rises to 41.38% for large companies. As expected, large firms have longer maturity than small firms. As large firms, listed firms (42%) have longer maturity as compared to privately held companies (33.97%). Basically, as firms get larger, their maturity becomes longer.

Panel F: Long-term Debt to Total Debt for Firms with and without a Stock Market

LTD/TD	Stockmarket	Without Stockmarket	t-test
All	0.3287	0.2999	3.5355***
Small	0.2762	0.3104	-3.3467***
Medium	0.3533	0.2677	5.4083***
Large	0.4184	0.3009	3.5527***

Next, we investigate the impact of the existence of a stock market. The average long-term debt to total debt for firms in a country with a stock market is 32.87% and it is 29.99% for firms in a country without a stock market. As expected, the presence of a stock market lengthens the maturity of large firms. However, surprisingly, it has an opposite impact on small firms. Small firms shorten their maturity in a country with a stock market. Since a stock market is another source of financing, small firms might prefer equity financing rather than long-term debt financing in countries with a stock market.

4.4.3. Tangibility

In the previous section, we demonstrate that the mean of asset tangibility of the firms in the sample is 45.21%. The average asset tangibility for the large listed firms in developing countries varies between 32.8% and 67.5% (Booth et al., 2001). The difference between them might be due to the size of the companies in our sample since the majority of the sample is comprised of small and privately held companies. Small and privately held firms have more tangibility than the large and listed firms. Since small and privately held firms are more opaque when compared to large and listed companies, they must have higher tangible assets to be used as collateral.

Table 4.21. Univariate analysis for Tangibility

Tangibility is measured as net fixed assets to total assets. Small represents the firms that employ less than 50 employees, medium firms have 50-500 employees, and large firms employ more than 500 employees. Private represents the privately held companies and listed is for publicly listed firms. Stockmarket represents those firms in countries with a stock market and without stockmarket represents firms in countries without stock market. * indicates significance at the 10% level, ** presents significance at the 5% level, and *** reports significance at the 1% level.

Panel A: Tangibility

Small	Large	t-test
0.4817	0.4143	11.6595***
Small	Medium	t-test
0.4817	0.428	-15.1732***
Medium	Large	t-test
0.428	0.4143	2.6541***
Listed	Privately held	t-test
0.4337	0.4671	-5.3647***

Table 4.21 demonstrates the results for tangibility. The mean of tangibility for small firms is 48.16%, while for large firms it is 41.44%. Even if small firms have higher tangible assets, they have lower leverage and debt maturity compared to large firms. The same is true for privately held and listed companies. The average tangible assets for privately held firms is 46.07% and it is 43.37% for listed companies. The mean of asset tangibility for listed companies in the U.S. (UK) is 39.5% (35.6%) (Antoniou et al., 2008). Moreover, the asset tangibility for small firms in developed countries alters between 19.8% and 56.3% (Hall et al., 2004). This figure changes to 35.3% for the UK (Michaelas et al., 1999). The firms in developing countries must have more tangible assets to be financed by debt compared to firms in developed countries. Additionally, small and privately held companies must have higher levels of collateral to be able to obtain debt due to their opaqueness and information asymmetry.

Panel B: Tangibility for Firms with and without Stock Market

Tangibility	Stockmarket	Without Stockmarket	t-test
All	0.4402	0.5513	-20.9460***
Small	0.4614	0.5774	-17.3679***
Medium	0.427	0.4486	-1.8942*
Large	0.4102	0.5016	-4.2134***

When we look at the impact of a presence of a stock market, we find that firms in a country with a stock market (44.02%) have lower tangible assets than firms in a country without a stock market (55.13%). Both small and large firms have higher levels of tangible assets in a country without a stock market. The average tangible assets for small firms in a country with a stock market is 46.14%, while it rises to 57.745 for the small firms in a country without a stock market. Since the existence of a stock market provides equity financing options, firms can lower their tangible assets.

4.4.5. Profitability

The firms in developing countries have higher levels of profit when compared to the U.S. (UK). The average profitability of the sample is 37.02%, while it is 16% (11.6%) in the U.S. (UK) (Antoniou et al., 2008). Since external funding options are limited in developing countries, firms prefer to keep their profits in the company as an internal funding source. Small firms' profitability is 32.91%, on average. The average profitability of large firms is 48.39%. On average, privately held firms at 38.67% are more profitable than listed firms at 36.55%. However, we could not find any statistically significant difference between privately held and listed companies.

Table 4.22. Univariate Analysis for Profitability

Profitability is calculated as the earnings before interest and tax divided by total assets. Small represents those firms that employ less than 50 employees, medium firms have 50-500 employees, and large firms employ more than 500 employees. Private represents the privately held companies and listed is for publicly listed firms. Stockmarket represents those firms in countries with a stock market and without stockmarket reports those firms in countries without a stock market. *, **, and *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Profitability

Small	Large	t-test
0.3291	0.4839	-10.3529***
Small	Medium	t-test
0.3291	0.3884	6.5479***
Medium	Large	t-test
0.3884	0.4839	-6.5608***
Listed	Privately held	t-test
0.3655	0.3867	-1.2625

Panel B: Profitability for Firms with and without Stock Market

	Stockmarket	Without stockmarket	t-test
All	0.3829	0.2653	8.4633***
Small	0.3443	0.2592	5.1749***
Medium	0.3937	0.2728	3.8679***
Large	0.4892	0.3557	1.7974*

When we compare the firms in countries with a stock market and without it, we find that firms in countries with a stock market (38.29%) have higher profitability than firms in countries without a stock market (26.53%). As expected, large firms are more profitable than small firms in countries with and without a stock market. The average profitability of small firms in countries with a stock market is 34.43%, while it declines to 25.92% in countries without a stock market. Large firms are more profitable in countries with a stock market (48.92%) than without a stock market (35.57%). Since external funding options are limited in developing countries,

especially for small firms, firms should be profitable to be able to use internal funding sources.

4.5. Conclusion

This chapter explained the data sources and properties of data. First, we discuss our data sources, present the summary statistics of variables across countries, and apply univariate analysis to test whether size and listing status have an effect on the leverage and debt maturity levels of firms. Moreover, we investigate the impact of the presence of a stock market on the leverage and debt maturity levels of firms. To our knowledge, this is the first thesis to use the World Bank Enterprise Survey to analyse the leverage and maturity levels of firms. Since this is the first thesis to use the World Bank Enterprise Survey, the properties of the data and preliminary analysis are the contributions of this chapter.

In this chapter, we also presented the descriptive statistics and univariate analysis. We find that leverage and debt maturity are lower for firms in developing countries than firms in developed countries. Moreover, the debt level of small and privately held firms is much lower as compared to the large and listed firms in the sample. We have discussed the level of leverage and term maturity in countries with and without a stock market. We find that firms in a country with a stock market can use more leverage and higher debt maturity than firms in a country without a stock market. This difference is higher especially for small firms. In contrast, the average leverage of large firms in countries with an active stock market is close to the average leverage in developed countries. Therefore, the presence of an active stock market is important for the external financing of firms in developing countries. Moreover, we

analyze the difference between privately held and listed firms. Privately held firms are less levered than listed firms; but the leverage of listed firms is still lower than those in developed countries.

We also discuss the economic and financial environments of the countries in the sample. Countries in the sample are not as rich as developed countries. They have higher uncertainty and interest rates. Also they fail to provide a business friendly environment for firms. The countries in the sample have higher corruption and they do not have developed financial institutions. All of these factors make external financing difficult for the firms in our sample. We also apply an F-test for country differences and find that the economic and financial environments of countries are not the same; therefore, we justify the use of economic and financial environment variables in our analysis in the following chapters. Since each country provides a different environment for its firms, they should have an impact on their external financing decisions. Hence, in the Chapters 5 and 6, we will investigate their effects on the leverage and debt maturity decisions of firms.

CHAPTER 5

DETERMINANTS OF CAPITAL STRUCTURE

5.1. Introduction

The purpose of this chapter is to investigate capital structure decisions of small and privately held firms in developing countries. The previous literature has mainly focused on the large listed firms in both developed and developing countries. For example, Rajan and Zingales (1995) examine the determinants of capital structure across G-7 countries and conclude that the factors are the same across countries. Booth et al. (2001) analyse the capital structure choice of large firms in ten developing countries and find that decisions are affected by the same variables as in developed countries, but with persistent differences across countries, which could be due to the impact of different institutional features on capital structure. Large firms are not, however representative of firms in developing countries. About 90% of our sample is small and medium sized firms, which characterise the corporate sector in developing countries much more accurately. The workforce employed in the SMEs in our sample varies between 27.60% and 86.50% (Ayyagari et al., 2005). Work on small and medium sized firms has been limited due to a lack of data. Some studies have examined some European countries where the economic and financial environments are similar. There are a number of studies that examine the capital structure decisions of SMEs (Ang, 1991; Holmes and Kent, 1991; Cosh and Hughes, 1994; Acs and Isberg, 1996; Bartholdy and Mateus, 2008; Daskalakis and Psillaki, 2008). But they either examine a small sample of countries (for cross country studies see Hall et al., 2004; Bartholdy and Mateus, 2008; Daskalakis and Psillaki, 2008) or a single country in Europe (for single country studies see Van der Wijst and Thurik, 1993; Bartholdy and Mateus, 2005; Sogorb-Mira, 2005). Therefore, it could be misleading to generalise the results of these studies. Only Beck et al. (2008) have examined small firms for a number of both developed and developing countries.

However, their data provide limited firm level financial information, which did not allow them to replicate the firm level controls used in capital structure papers. Financing patterns are given in terms of proportions of investment, not as debt to asset ratios, as is common in the literature.[13] They focus instead on how financial and institutional development affects the financing of firms using a broad spectrum of financing sources including leasing, suppliers, development, and informal finance. However, their data do not allow them to test for the capital structure theory as in studies for developed countries. In contrast, our rich database allows us to do that. Our study helps answer the following questions:

1. Is there any difference in corporate financing decisions due to the size or listing status of the firms?

2. Does the economic and financial environment of a country have an impact on the capital structure decisions of firms?

We use the World Bank Enterprise survey and investigate the determinants of the capital structure of firms from 24 developing countries covering all regions including Africa, East Asia and Pacific, Latin America and Caribbean, the Middle East and North Africa, and South Asia. We find that capital structure theories hold in developing countries. We confirm that small firms have lower leverage. The economic and financial environment has a significant impact on the financing decisions of small firms, while for large firms, most of the variables become statistically insignificant and do not add much to the explanation of the variability of our dependent variable.

[13] See Beck et al. (2008), page 470.

Section 5.2 discusses the empirical results and Section 5.3 concludes this chapter.

5.2. Empirical Results

In this section, we present the regression results for the determinants of capital structure in developing countries. We first report our results for all of the firms in the 24 countries. We find that large firms have higher leverage than small firms. To examine whether the capital structure theories are portable to small firms, we split the sample based on the size of the firms as small, medium, and large. We present the results for medium firms too but we will only discuss the results for the determinants of capital structure for small and large firms. We confirm that capital structure theories are portable to small firms. The main difference between small and large firms is derived from the impact of the economic and financial environment of the country. For the robustness of our results, we use different definitions of size and we confirm that our results are robust to different definitions of size. Since most of the previous studies examine the determinants of capital structure for listed companies, we divide our sample based on privately held and listed firms and analyze whether the determinants of private and listed firms are different. We find that firm level, economic, and financial environment determinants have a significant impact on the leverage and debt maturity decisions of privately held firms, while most of the variables do not have a significant effect on listed firms. This is not surprising since most private firms are SMEs.

5.2.1. Determinants of capital structure

We have estimated the leverage against firm level, economic, and financial environment variables. The functional form of the equation estimated and the expected signs of the variables are as follows:

$$Leverage_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \qquad (5.1)$$

$i = 1, 2, ...,10,839; t = 1999,\ldots,2004$

Leverage is total liabilities to total assets for the i^{th} firm at time t. $F_{i,j,t}$ indicates the firm level variables, asset tangibility, profitability and size, while $E_{i,k,t}$ represents the economic environment variable, GDP per capita, growth, inflation, interest, and tax at time t. $Fin_{i,l,t}$ presents the financial environment variables, corruption, legal system, deposit money bank assets to central bank assets, stock market dummy, stock market turnover, offshore bank deposits to GDP, and offshore bank deposits to domestic bank deposits at time t.

Table 5.1 presents the results of leverage for the overall sample. The coefficient for tangibility is negative for leverage indicating that as collateral increases, firms borrow less as opposed to our expectation. According to the trade-off and agency theories, as tangibility increases, collateral increases and firms should be able to find more debt (Rajan and Zingales, 1995; Titman and Wessels, 1988). The pecking order theory also supports this positive relation since collateral relieves the information asymmetry problem. Alternatively, some studies have found an inverse relationship and explain it with the maturity matching principle (Booth et al., 2001). We observe the same in opposition to our expectations. We will discuss the maturity

matching principle in Chapter 6 when we discuss the results for debt maturity. Hence, firms with higher tangible assets prefer equity financing to debt financing.

Table 5.1. Leverage

This table presents the regressions of leverage on firm level, economic, and financial environment variables. Leverage is the ratio of total liabilities to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and taxes divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes the value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is the GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has a civil law legal system and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. ***, **, and * indicates significance at 1%, 5%, and 10% level , respectively.

	Leverage
Tangibility	-0.1718***
	(0.010)
Profitability	-0.0154***
	(0.004)
Small	-0.1066***
	(0.006)
Large	0.0576***
	(0.009)
GDP/Cap	-0.0584***
	(0.007)
Growth	3.1978***
	(0.258)
Inflation	0.1390***
	(0.030)
Interest	0.4114***
	(0.035)
Tax	0.1593**
	(0.074)
Corruption	0.1241***
	(0.011)
Civil	0.0904***
	(0.010)
Dbacba	0.1700***
	(0.016)
Stockmrk	0.1996***
	(0.010)
Turnover	-0.0252***
	(0.003)
Nrbloan	0.1012
	(0.070)
Offdep	0.1304***
	(0.022)
C	0.3803***
	(0.054)
Observation	26419
R^2	0.1940

The coefficient for profitability is negative indicating that as profitability increases, leverage decreases. We confirm our hypothesis that leverage is negatively related to profitability. This provides support for the pecking order theory (Myers and Majluf, 1984). Firms use retained earnings first and then move to external sources of financing. This negative correlation also supports the existence of asymmetric information. Since managers of the firms know better than outside investors about the company's value, prospects, and risks, outside investors increase the cost of borrowing to compensate for information asymmetry. Therefore, to reduce the cost of borrowing, firms prefer to be financed by internal funds first. In accordance with Booth et al. (2001), this result proposes that external financing is costly; as a result, firms avoid it. The size dummy for small firms has a negative coefficient and the dummy for large firms has a positive coefficient. Leverage is higher for large firms and lower for small firms. As firms' size increases, they become more diversified and have more stable cash flow. They are less often bankrupt when compared to small firms (Pettit and Singer, 1985). Since they are more mature firms, they have better status in the debt market. Therefore, the agency cost of debt is lower for those firms, so that they can afford higher levels of leverage. Booth et al. (2001) also supports this positive relationship between leverage and firm size. Therefore, we confirm our hypothesis that larger firms have higher leverage.

Looking now at the macroeconomic variables, we find that GDP per capita is negative; however, we expected a positive relation between leverage and GDP per capita. Firms in rich countries might prefer equity financing to debt financing. As increases in GDP per capita define the economic development of a country, more financing and financing options become available for firms. Therefore, firms in

economically developed countries prefer equity financing. GDP growth has a positive coefficient. In countries with a relatively higher rate of economic growth, firms are eager to take on higher levels of debt to finance new investment (Bartholdy and Mateus, 2008). The coefficient for inflation is positive implying that firms boost their debt financing in an inflationary environment which opposes our expectations. Increases in inflation lead to a higher value of tax deductions on debt (Taggart, 1985). As a result, firms are inclined to use more debt financing in an inflationary environment. Frank and Goyal (2007) also find the same positive association. According to them, firms have an incentive to borrow more as inflation increases if managers can time their debt. In that way, they can lower their cost of borrowing when inflation is higher than the current interest rate. The impact of interest on leverage is positive suggesting that firms continue to borrow despite the increases in the cost of interest. We expected negative relationship between leverage and interest as increases in the interest rate boost the cost of borrowing. However, firms continue to borrow despite the increases in interest. This may be due to the fact that in most developing countries, interest rates rise when ceilings are abolished as a result of financial liberalisation and funds become available (Bekaert et al., 2003). The coefficient for tax is positive for leverage in accordance with our hypothesis. As taxes increase, firms borrow more. In accordance with the trade-off theory, firms prefer to be financed by debt as interest payments are tax deductible. By using the Miller tax term, Booth et al. (2001) find the same positive impact on leverage. Therefore, firms can benefit from higher tax shields by continuing to fund with more debt.

Next, we discuss the regression results on the impact of the financial environment variables on firm leverage. First, we analyze the impact of corruption on firm leverage. The coefficient for corruption is positive for leverage. We confirm our hypothesis that firms increase their debt financing in better governed countries. As the exercise of public power for private gain decreases, financial systems become more transparent and, as such, more trustable. The more transparent and trustable the financial system is the more loans and investments become available. Since the countries in the sample are relatively poor compared to European countries, corruption is one of the largest obstacles making investment and borrowing costly. Therefore, the lower the corruption, the more funding firms are able to find.

Additionally, we examine the effect of the legal system on firm leverage. The coefficient for the civil law dummy is positive for leverage implying that firms in the countries with civil law legal systems can borrow more. Since countries with civil law legal systems have weaker property and investor rights, firms in those countries prefer debt financing, specifically short-term debt financing (Demirguc-Kunt and Maksimovic, 1999). We will analyze the impact of debt maturity in the Chapter 6.

Furthermore, we investigate the effect of financial institutions on leverage. The coefficient for deposit money bank assets to central bank assets is positive for leverage in accordance with our expectations. When the deposit money banks play a larger role than the central bank in the banking system, we could say that financial institutions in the country are highly developed (Beck et al., 2009). The developed banking system provides more funds; therefore, the debt financing of firms

increases. The coefficient for the stock market dummy is positive for leverage. We confirm our hypothesis that in countries that have a stock market, firms have access to more external financing. As banks, the stock market is another option for firms to raise funds. Stock markets signify the use of equity markets in raising capital, but it also encourages greater use of bank financing in developing countries (Demirguc-Kunt and Levine, 1996). The existence of a stock market offers better diversification and increased liquidity; therefore, the amount of investments available in a country is expected to amplify (Greenwood and Jovanovic, 1990; Obstfeld, 1994). With stock markets, bank loans rise. As a result, firms have access to more external funding. The coefficient for stock market turnover is negative for leverage suggesting that as turnover increases, firms prefer equity financing. Since high turnover decreases the transaction costs and raises the liquidity of the market, funding in the stock market becomes cheaper (Levine and Zervos, 1998). Therefore, firms may prefer to borrow less debt and shift their financing choices from debt financing to equity financing. Financial institutions play an important role in supplying available funds to firms. Financially developed countries create more external financing opportunities, while an active and more liquid stock market allows firms to elect equity financing over debt financing. The existence of a stock market amplifies the available funding in the financial system; therefore, firms' borrowing increases.

Finally, we explore the effects of financial globalization on firm leverage. Offshore bank loans to GDP do not have a significant impact on the leverage.[14] The coefficient for offshore bank deposits to domestic bank deposits is positive for

[14] We find a positive relationship when we do the robustness test. We discuss the effect in the robustness test section.

leverage. As offshore bank deposits increases, the debt level of firms also amplifies. The lack of trust in the domestic banking system may force firms to prefer offshore banking. We expected a negative correlation between offshore banking and leverage since available funds become unavailable within the domestic banking system. However, as we see this variable as a proxy for financial globalization, we find a positive relationship. Financial globalization makes local markets more open and connected to the international financial markets. As the financial system integrates to international financial markets, more funds become available in the domestic system. Therefore, the debt funding of firms is enhanced.

In conclusion, the firms in our sample follow the theories in their debt financing decisions. Firm level variables have an impact on their leverage decisions, as well as the economic and financial environment of the country.

5.2.2. Are the determinants of capital structure portable for Small Firms?

In this section, we analyse whether the determinants of capital structure are portable to small firms. Table 5.2 presents the results for Small, Medium and Large firms. Tangibility is negatively related to leverage in opposition to our expectations. Both small and large firms borrow less when they have higher collateral. Daskalakis and Psillaki (2008) find the same negative relationship between leverage and asset tangibility for SMEs. They explain it as firms with higher tangible assets already have a steady source of income. This income helps firms to generate more internal funds; therefore, firms are less reluctant to use external financing. Alternatively, the reason for this negative association might be the maturity matching principle (Booth et al., 2001) that will be discussed in Chapter 6. Large firms follow the pecking

order when they utilize internal funding. However, we could not find any significant relationship between the profitability and leverage of small firms as opposed to our expectation. Therefore, the debt financing decisions of small firms is dependent only on collateral. Internal sources do not have any impact on their debt decisions. If small firms have enough resources, they would not look for external financing.

The main difference between small and large firms comes from the impact of the macroeconomic and financial environment variables. Most of the economic and financial factors become insignificant for large firms. The richness of the country lowers the debt financing of small and large firms. In opposition to our hypothesis, both types of firms shift from debt financing to equity financing as the country gets richer. Economic growth boosts the debt financing of small firms, while uncertainty in the economy encourages their borrowing. Unlike small firms, large firms are not affected by growth, inflation, and taxes, but only by the GDP per capita and interest rates. Large firms continue to borrow debt in spite of the increases in interest rates. Hence, the results indicate that the effects that we have seen for the overall sample chiefly demonstrate the capital structure decisions of small firms. In accordance with the trade-off theory, small firms boost their debt financing with increases in the tax rate.

Table 5.2. Leverage for Small, Medium and Large Firms

This table presents the regressions of leverage on firm level, economic, and financial environment variables for small, medium, and large firms. Column 1 reports the regression for leverage of small firms, Column 2 presents the results for medium firms, and Column 3 is for large firms. Leverage is the ratio of total liabilities to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and taxes divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates significance at 1% level, ** at the 5% level, and * at the 10% level.

Leverage	Small	Medium	Large
Tangibility	-0.1783***	-0.1770***	-0.1083***
	(0.013)	(0.017)	(0.033)
Profitability	-0.0003	-0.0357***	-0.0232**
	(0.004)	(0.006)	(0.011)
GDP/Cap	-0.0425***	-0.1022***	-0.0510*
	(0.009)	(0.012)	(0.028)
Growth	2.2893***	4.4984***	1.1692
	(0.369)	(0.437)	(0.901)
Inflation	0.2307***	0.1488***	0.0434
	(0.046)	(0.049)	(0.140)
Interest	0.4514***	0.5096***	0.3225**
	(0.050)	(0.055)	(0.129)
Tax	0.3018***	-0.0195	-0.3029
	(0.104)	(0.130)	(0.309)
Corruption	0.1721***	0.1493***	-0.0025
	(0.015)	(0.017)	(0.037)
Civil	0.0790***	0.1265***	-0.0482
	(0.015)	(0.016)	(0.037)
Dbacba	0.2326***	0.1785***	0.0624
	(0.024)	(0.026)	(0.064)
Stockmrk	0.1801***	0.1320***	0.1655***
	(0.013)	(0.021)	(0.051)
Turnover	-0.0327***	-0.0151***	-0.0196*
	(0.004)	(0.005)	(0.010)
Nrbloan	0.1801*	0.0816	0.2415
	(0.094)	(0.129)	(0.276)
Offdep	0.2164***	0.1259***	-0.1234
	(0.032)	(0.035)	(0.079)
C	0.1223*	0.7243***	0.7376***
	(0.072)	(0.093)	(0.217)
Observation	12626	10927	2866
R^2	0.1934	0.1119	0.0338

The impact of the financial environment on leverage decisions among different sizes of firms indicates some differences. Like the economic environment, most of the

financial environment variables become insignificant for large firms. A civil law legal system and a less corrupt environment aid small firms' borrowing. We confirm our hypothesis that small firms borrow more in civil law and better governed countries. Financial institutions are an important factor for small firms, whereas large firms do not consider them for their leverage decisions. The effect of the financial institutions stays the same for small firms. They prefer debt financing when the country has a developed banking system and a stock market. A highly liquid stock market makes small firms shift from debt financing to equity financing. In contrast, although large firms boost their debt financing in countries with a stock market, they prefer equity financing when stock market turnover is high. Therefore, we confirm our hypothesis that both small and large firms prefer debt financing in countries with a stock market and they prefer equity financing when the stock market turnover is high as the cost of equity financing becomes cheaper.

Financial globalization increases the external financing of small firms, but it does not significantly affect large firms. With financial globalization, firms gain access to developed financial markets. This access makes more funding available for firms; therefore, small firms can increase their external financing in accordance with our expectations. Alternatively, we could find no significant correlation between financial globalization and leverage for large firms. Since large firms have already had access to the international financial markets, it does not matter to them whether the country's financial system is engaged in the international financial markets or not. Hence, for large firms, the presence of an active stock market and turnover are the only factors that have an impact on the debt financing decisions among the financial environment variables.

In sum, no matter what the size of the firm, firm level variables have an important impact on their debt financing decisions. Only for small firms, could we not find any significant correlation for profitability. We confirm that small firms are more exposed to the shocks and changes in the economic and financial environment of the country than large firms since most of the variables become insignificant for large firms. The reason for this could be large firms' access to the international financial markets. Large firms only consider increases in the cost of borrowing and the existence of a stock market in their debt financing decisions. As expected, liquidity of the stock market encourages them use equity financing. In contrast, changes in the local economy and financial environment alter the debt financing decisions of small firms. Thus, the external financing of small firms is more dependent upon the economic and financial development of the country.

5.2.3. Are results different for different measures of size?

We test the robustness of our results by using different definitions of size. First, we use the logarithm of sales and then the logarithm of assets to proxy size, respectively, in Table 5.3. When we examine Table 5.3, we observe that the results are very similar to those reported in Table 5.1. Leverage is higher for large firms. Larger firms usually have more stable cash flows and lower bankruptcy risk (Pettit and Singer, 1985). They also have access to the international capital markets; therefore, being a large firm increases leverage. We confirm that firms in the sample follow the theory. The impact of macroeconomic determinants also remains the same. The richness of the country reduces the firms' borrowing, while economic growth increases leverage. Firms continue to borrow despite uncertainties in the

economy and the higher cost of borrowing. We could not find any significant association between tax and leverage, as opposed to our previous results.

When we look at the financial environment variables, there is no significant change from the previously reported results. The only exception is offshore bank loans to GDP. We find a positive relation between this ratio and leverage as opposed to the insignificant relationship noted previously. The higher the offshore loans, the more leverage firms have. Since offshore bank loans provide more available funds into the domestic financial system, firms can borrow more. Developed banking systems and active stock markets boost the leverage of firms, while higher stock market turnover decreases leverage.

In summary, our results are robust to different definitions of size. Regardless of the various definitions of size we used based on the number of employees, sales, and total assets of the company, we find that leverage is higher for larger firms. Large firms have access to the international capital markets; therefore, being a large firm increases leverage.

Table 5.3. Leverage with Different Size Proxies

This table presents the regressions of leverage on firm level, economic, and financial environment variables by using different size proxies. Column 1 presents the regression with the logarithm of sales and Column 2 reports the regression results with a logarithm of assets. Leverage is the ratio of total liabilities to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and taxes divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has a civil law legal system and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	Sale	*Asset*
Tangibility	-0.1647***	-0.1733***
	(0.010)	(0.010)
Profitability	-0.0188***	-0.0057
	(0.004)	(0.004)
Size	0.0211***	0.0174***
Log(sale)	(0.001)	(0.001)
GDP/Cap	-0.0889***	-0.0841***
	(0.007)	(0.007)
Growth	4.1455***	4.1583***
	(0.258)	(0.259)
Inflation	0.1670***	0.1682***
	(0.030)	(0.030)
Interest	0.2872***	0.3295***
	(0.036)	(0.036)
Tax	-0.0381	-0.0297
	(0.075)	(0.076)
Corruption	0.1455***	0.1406***
	(0.011)	(0.011)
Civil	0.0781***	0.0735***
	(0.010)	(0.010)
Dbacba	0.1035***	0.1202***
	(0.017)	(0.017)
Stockmrk	0.2479***	0.2502***
	(0.010)	(0.011)
Turnover	-0.0272***	-0.0292***
	(0.003)	(0.003)
Nrbloan	0.2583***	0.2805***
	(0.071)	(0.071)
Offdep	0.0668***	0.0654***
	(0.023)	(0.023)
C	0.3383***	0.3287***
	(0.055)	(0.055)
Observation	26390	26419
R^2	0.1803	0.1737

5.2.4. Are the determinants of capital structure different for privately held firms?

We perform other estimations to check the robustness of our results. Since most of the previous studies focus on listed firms, we split our sample into two subsamples based on firms that are privately held and publicly listed. Table 5.4 reports the results for leverage of privately held and listed companies. The impact of firm level variables stays the same for privately held firms, while for listed firms, profitability and large become insignificant. For listed firms, internal funds and being a larger firm are not important factors in debt financing decisions. The effect of economic environment variables on privately held and listed firms stays the same in accordance with the results of small and large firms, except for growth and tax. Although growth does not have any significant impact on large firms, listed firms boost their debt financing as the economy grows. Tax has a negative impact on listed firms, while it has no effect on large firms. The opposite relationship is true for private and small firms. We could not find any significant association between tax and leverage for private firms, but small firms increase their leverage as tax rates increase.

Column 1 in Table 5.4 presents the results for leverage of privately held firms. Firm level determinants of capital structure for privately held firms stays the same in accordance with our previous findings in the above sections. Privately held companies also prefer internal financing as asset tangibility and profitability boost. Being a large firm increases the debt financing of a firm, while smaller firms have lesser debt. Privately held firms also consider the economic environment of a country in their debt financing decisions. The richness of the country decreases the

leverage of privately held firms, while growth in the economy increases the debt financing of privately held firms, as well as uncertainties in the economy. Privately held firms continue to use debt financing in spite of the increases in interest, while tax does not have any significant effect on their leverage decisions. Privately held firms consider corruption, financial institutions, and financial globalization in their leverage decisions. They use more debt financing in countries with better governance, developed financial institutions, and financial globalization since developed financial environments increase the available funding opportunities in the country.

Column 2 in Table 5.4 reports the estimations for leverage of publicly listed firms. As opposed to our previous findings, we could not find all of the firm level determinants significant. Listed firms also prefer internal financing as tangibility increases and being a small firm decreases debt financing. Alternatively, profitability and large do not have any significant effect on the leverage decisions of listed firms. Moreover, most of the economic environment variables become insignificant. The richness of the country decreases debt financing, while economic growth increases the leverage of listed firms. Inflation does not have a significant impact on the debt financing decisions of listed firms. Interest has a positive and tax has a negative impact on leverage. In contrast, as large firms, listed firms can find external funding in both domestic and international markets; therefore, the development of the financial environment does not affect their capital structure decisions. Thus, the debt financing decisions of privately held firms are more sensitive to the development of the financial environment of a country more so than listed firms.

Table 5.4. Leverage for Privately Held and Listed Firms

This table presents the regressions of leverage on firm level, economic, and financial environment variables for private and listed firms. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and taxes divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, **a level of significance at 5%, and * a level of significance at 10%.

Leverage	*Private*	*Listed*
Tangibility	-0.1788***	-0.1253***
	(0.011)	(0.042)
Profitability	-0.0138***	-0.0088
	(0.004)	(0.013)
Small	-0.1326***	-0.0716***
	(0.006)	(0.026)
Large	0.0866***	-0.0076
	(0.010)	(0.023)
GDP/Cap	-0.0152**	-0.1086***
	(0.007)	(0.037)
Growth	2.5446***	3.5022***
	(0.307)	(1.344)
Inflation	0.0966**	-0.0412
	(0.038)	(0.069)
Interest	0.3885***	0.2242*
	(0.046)	(0.129)
Tax	-0.1433	-0.7224**
	(0.108)	(0.324)
Corruption	0.0894***	0.0355
	(0.013)	(0.043)
Civil	-0.0108	0.1202*
	(0.013)	(0.067)
Dbacba	0.1559***	0.0859
	(0.018)	(0.070)
Turnover	-0.0083***	-0.0122
	(0.003)	(0.012)
Nrbloan	0.2022**	0.0796
	(0.083)	(0.287)
Offdep	0.0925***	0.0045
	(0.025)	(0.077)
C	0.4135***	1.2530***
	(0.067)	(0.315)
Observation	22409	2006
R^2	0.1638	0.0924

5.3. Conclusion

This section examined the determinants of capital structure decisions of firms in developing countries. The main focus of the previous literature is mainly on large listed firms. Since large listed firms have also access to the international markets, it can be misleading to generalize their results for SMEs. In contrast to earlier studies, our main focus is on small and privately held firms in developing countries. About 90% of private firms and about 70% of the listed firms in our sample are small and medium sized. We use survey data from the World Bank Enterprise Survey, which has not been used before. As indicated in the previous chapter, leverage is lower for private and small firms despite their higher asset tangibility and profitability. We attribute this to their limited access to financing.

Size is an important factor in the level of leverage a firm holds. We confirm our hypothesis that as firms become larger, they increase their leverage in their capital structures. Larger companies are usually more diversified and their risk of failure is reduced. As a result, they can have higher leverage. Small firms have lower leverage. Both small and large firms do not prefer debt financing when they have higher collateral as opposed to our expectation. Daskalakis and Psilliaki (2008) find the same inverse relation for SMEs. Firms with high tangible assets have a more stable source of return; therefore, they can generate more internal funds and prefer less external financing. On the other hand, we could not find any significant relation between profitability and leverage for small firms as opposed to previous studies (Daskalis and Psillaki, 2008). Due to information asymmetries and high inflation in developing countries, small firms face higher interest rate costs. Also, they are

financially more risky when compared to large firms. As a result, debt financing becomes expensive for small companies.

The economic environment of each country influences the debt decisions of firms differently. GDP per capita, economic growth rates, inflation, and interest rates are important for small and privately held firms. Since large and listed firms have easy access to both domestic and international financial markets, not all economic environment factors are significant as opposed to our expectations. As with the economic environment, the financial environment influences leverage decisions of small and privately held firms. Leverage of large firms is only affected by the existence of a stock market and turnover; whereas, listed companies increase their leverage in countries with civil law legal systems. Therefore, the main difference between small, privately held and large, listed firms comes from their sensitivity to the economic and financial environment of the country. Since small and privately held firms cannot access international financial markets, the decisions taken by local governments on economic policies and the financial environment have a direct impact on the external financing decisions of small and privately held firms. Since small firms are vital for economic growth, local governments must consider small firms before making any policy decisions. They should take small firms into consideration when they prepare fiscal and monetary policies and any regulations that they set for financial institutions.

CHAPTER 6

THE DETERMINANTS OF DEBT MATURITY STRUCTURES

6.1. Introduction

This chapter investigates the determinants of debt maturity structure of firms in developing countries. By using various databases, such as the World Bank Enterprise survey, the Worldwide Governance Indicators, and the Financial Development and Structure database, we analyze the determinants of debt maturity structures of small and large firms. Most of the previous studies on the debt maturity structures of firms focus on large listed companies in both developed and developing countries (Demirguc-Kunt and Maksimovic, 1999; Booth et al., 2001; Antoniou et al., 2006). But the work on small and medium size enterprises is limited to European countries where the economic and financial environments are alike (Michaelas et al., 1999; Cassar and Holmes, 2003; Gianetti, 2003; Hall et al., 2004; Bartholdy and Mateus, 2005; 2008; Sogorb-Mira, 2005; Daskalakis and Psillaki, 2008). Therefore, it could be misleading to accept their findings and generate them for all types of firms in developing countries. Hence, to fill this gap, we investigate the effect of firm level, economic, and financial environment variables on the debt maturity of companies, specifically small firms in developing countries.

This chapter follows Demirguc-Kunt and Maksimovic (1999). They analyze the relation between the financing choices of firms and the level of financial market development in 30 developed and developing countries. They also examine this relationship for both large and small firms. However, the firms included in the study are publicly listed companies. This means that the small firms contained in their sample are relatively large, especially for developing countries. Unlike their study, the majority of firms in our sample are SMEs, which constitute 90% of the firms. In addition to the difference in the size of the firms, we also include the effect of

corruption and financial globalization in our analysis. Since the countries in the sample are relatively poor compared to other countries, corruption can be the biggest obstacle for firms' external financing. Furthermore, since small firms in developing countries have difficulty accessing international financial markets, we include a financial globalization variable to demonstrate the effect of engagement of the financial system of a country into international financial markets on the capital and debt maturity structures of firms. We are looking for the answers to following questions:

- Is there a size effect on debt maturity decisions of firms?
- Are the determinants of debt maturity different for small firms?
- Do economic and financial environment of a country affect the debt maturity decisions?

Small firms have different characteristics compared to large firms. Small firms are more opaque and they have information asymmetry problems. That's why accessing external financing is a big problem. As we indicated in Chapter 3, the descriptive statistics section, small firms have shorter maturity when compared to large firms. Therefore, we try to determine whether the determinants of debt maturity structure are also different due to their different characteristics. For that purpose, we analyze the effect of firm level, economic, and financial environment variables on debt maturity. We find that larger firms have longer debt maturity. Small firms are more sensitive to the changes in the economic and financial environment of the country. Therefore, the economic and financial environment of a country is very important for the development of small firms.

The remainder of this chapter is organized as follows. Section 6.2 presents the empirical results for the determinants of debt maturity. Section 6.3 concludes the chapter.

6.2. Empirical results

In this section, we present the regression results for the determinants of debt maturity of firms. At first, we use long-term and short-term debt to total assets as the dependent variable and estimate our model. Additionally, we use long-term debt to total debt as a dependent variable and estimate the model including leverage as a firm level variable. For both sections, we first report the results for all the firms in 24 countries. Then, we examine whether the determinants of debt maturity are different for small firms by dividing the sample based on the size of the firms delineating them as small, medium, and large. We report the results for medium firms. Since most of the difference will come between small and large firms, we will not discuss the results of medium firms. Next, we test the robustness of our results by using different definitions of size. Finally, we analyze the debt maturity decisions of privately held and publicly listed companies.

6.2.1. The determinants of long-term and short-term debt to total assets decisions of firms

Our empirical model is debt maturity against firm level, economic, and financial environment variables. As we outlined the empirical models in the Chapter 3, we use two models in this section. We use long-term debt to total assets as debt maturity

and we apply short-term debt to total assets as a dependent variable. The functional form of the equation estimated is the following:

$$LTD/TA_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \qquad (6.1)$$

$$STD/TA_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \qquad (6.2)$$

$i = 1, 2, ...,10,839$; $t = 1999,\ldots,2004$

Long-term debt to total assets is long-term liabilities to total assets for the i^{th} firm at time t and short-term debt to total assets is short-term liabilities to total assets for the i^{th} firm at time t. $F_{i,j,t}$ indicates the firm level variables, asset tangibility, profitability and size, while $E_{i,k,t}$ represents the economic environment variable, GDP per capita, growth, inflation, interest and tax, at time t. $Fin_{i,l,t}$ presents the financial environment variables, corruption, legal system, deposit money bank assets to central bank assets, stock market dummy, stock market turnover, offshore bank deposits to GDP, and offshore bank deposits to domestic bank deposits at time t.

Table 6.1 Column 1 presents the coefficients for long-term debt to total assets, while Column 2 reports the results for short-term debt to total assets for the overall sample. First we discuss the results for long-term debt to total assets. The coefficient for tangibility is positive for long-term debt to total assets. A firm with more tangible assets uses more long-term debt in accordance with the maturity matching principle (Booth et al., 2001). According to the trade-off and pecking order theories, as tangibility increases, collateral increases and firms are able to find more long-term debt (Rajan and Zingales, 1995; Titman and Wessels, 1988). Therefore, we

confirm our hypothesis that firms with higher tangible assets have longer maturity. Profitability has a negative coefficient. We confirm our hypothesis that as profitability increases, long-term debt to total assets decreases. Booth et al. (2001) find the same inverse relation. Firms prefer to be financed internally if they have enough internal sources (Myers and Majluf, 1984). The coefficient for small is negative, while the coefficient for large is positive. As firms get larger, they use more long-term debt financing in accordance with Booth et al. (2001).

Macroeconomic coefficients have also influenced long-term debt financing decisions. The coefficient for GDP per capita is negative for long-term debt to total assets as opposed to our expectations. As income of the country increases, more financing options become available. As a result, firms prefer equity financing. The coefficient for GDP growth is positive implying that as countries grow, firms prefer to be financed by long-term debt. The impact of inflation on long-term debt to total assets is negative in accordance with our hypothesis. Booth et al. (2001) also find the same inverse relation. Higher inflation introduces higher uncertainty in the environment and amplifies the cost of borrowing (Fan et al., 2011). Therefore, firms are able to borrow against real, but not inflationary growth prospects (Booth et al., 2001). Uncertainty in the economy makes firms prefer short-term rather than long-term debt financing. Interest has a negative coefficient indicating that as interest rates increase, firms avoid financing themselves with long-term debt due to the higher cost of interest expense. We confirm our hypothesis that increases in interest rates make firms prefer shorter maturity. The coefficient for tax is negative indicating that firms in countries with higher tax rates use less long-term debt. This result is difficult to interpret. Higher tax rates provide incentives for firms to borrow

more due to tax shield. However, at the same time, this high borrowing increases the risk of bankruptcy and financial distress costs. Bankruptcy costs are very important for small firms since they have higher business risk and greater probability of failure. Also, this higher probability of failure decreases the value of the firm. Therefore, increases in the probability of failure and decreases in the value of the firm may cause firms in developing countries to avoid the trade-off theory for long-term debt financing. Alternatively, Booth et al. (2001) find a positive relation between tax and long-term debt to total assets. Since the firms included in that study are large listed companies, the probability of failure is very low. However, our results indicate that tax has a positive impact on short-term debt to total assets. Therefore, firms benefit from tax shields via short-term debt rather than long-term debt. This is a unique feature for developing countries.

The effect of the financial environment on long-term debt financing decisions of firms demonstrates some differences when compared to their leverage decisions. Firms in highly corrupt countries increase their use of long-term debt financing as opposed to our expectations. According to the efficient grease hypothesis, paying bribes enables firms to reach cheaper credit. That way, firms can save time, as well as overcome troublesome regulations. As a result, they can lower the cost of capital (Kaufmann and Wei, 2000). Firms in the countries with civil law legal systems borrow less long-term debt as they prefer short-term debt financing. Since protection to external investors is better in common law legal systems than civil law legal systems, firms in civil law countries prefer to be financed by less long-term debt (Demirguc-Kunt and Maksimovic, 1998; La Porta et al., 1999).

Table 6.1. Long-term and Short-term Debt to Total Assets

This table presents the regressions of long-term and short-term debt to total assets on firm level, economic, and financial environment variables for private and listed firms. Column 1 presents the results for long-term debt to total assets, while Column 2 provides results for short-term debt to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and *a level of significance at 10%.

All	*LTD/TA*	*STD/TA*
Tangibility	0.0394***	-0.2160***
	(0.007)	(0.008)
Profitability	-0.0122***	-0.0031
	(0.003)	(0.003)
Small	-0.0589***	-0.0462***
	(0.004)	(0.005)
Large	0.0374***	0.0231***
	(0.007)	(0.008)
GDP/Cap	-0.0079*	-0.0370***
	(0.005)	(0.005)
Growth	2.0818***	1.5959***
	(0.181)	(0.211)
Inflation	-0.0549**	0.1944***
	(0.023)	(0.026)
Interest	-0.1437***	0.5671***
	(0.025)	(0.029)
Tax	-0.6741***	0.8893***
	(0.050)	(0.063)
Corruption	-0.0254***	0.1349***
	(0.007)	(0.008)
Civil	-0.0616***	0.1372***
	(0.007)	(0.008)
Dbacba	0.0193*	0.1308***
	(0.011)	(0.013)
Stockmrk	0.0714***	0.1391***
	(0.008)	(0.008)
Turnover	0.0017	-0.0291***
	(0.002)	(0.002)
Nrbloan	0.1227**	0.0816
	(0.052)	(0.059)
Offdep	-0.0390**	0.1610***
	(0.015)	(0.018)
C	0.3210***	-0.0705
	(0.037)	(0.046)
Observation	25935	25935
R^2	0.1051	0.2139

As expected, developed banking systems and the existence of a stock market boost the long-term funding of firms since they lower the cost of acquiring and processing

information. In developed and efficient financial systems, more external financing opportunities become available; thus, firms can ameliorate their debt financing, specifically long-term funding. We could not find any significant relation between stock market turnover and long-term debt to total assets. Globalization of financial markets also has an impact on the long-term financing decisions of firms. As offshore banking loans increase, more funds become available in the financial system. As a result, firms can use more long-term debt. Alternatively, increases in offshore bank deposits as compared to domestic bank deposits decrease the available funding. Accordingly, long-term debt to total assets lessens.

Table 6.1 Column 2 presents the results for estimations using short-term debt to total assets as the dependent variable. Results reported here complement the results for estimations for long-term debt to total assets. As asset tangibility increases, firms reduce short-term debt and move toward long-term debt. Internal funds do not have a significant effect on short-term debt financing decisions. For long-term financing, the larger the firm, the more short-term funding firms can access.

When we look at the effect of the economic environment, firms borrow less short-term debt as the GDP per capita increases as opposed to our hypothesis. Firms in richer countries prefer equity financing to debt financing. As the economy grows, short-term debt financing of firms rises. They continue to borrow in spite of the increases in inflation and interest. As previously mentioned, if managers borrow at the right time, when inflation is higher than interest rate, they can lower their cost of borrowing. They can also benefit more from the tax shields. Therefore, they borrow more short-term in an inflationary environment. They continue to borrow short-term

in spite of the increases in the interest rate. Tax has a positive impact on the short-term debt to total assets indicating that to benefit more from tax shields, firms in our sample use more short-term debt financing. Therefore, firms in the sample benefit from tax shields through short-term debt and they avoid long-term debt due to the bankruptcy risk.

Civil law legal systems and better governance (less corruption) encourages firms to use more short-term debt. Since common law legal systems offer better protection to investors, firms in those countries use more long-term debt and equity financing, while the firms in countries with civil law legal systems use more short-term debt financing. In accordance with our results, firms in countries with civil law legal systems have shorter-term debt. Developed banking sectors and the presence of an active stock market provide more available funding into the financial system; therefore, firms can increase their short-term borrowing. Liquid stock markets encourage firms to prefer equity financing due to the lower cost of equity capital. For short-term borrowing, firms in our sample do not consider offshore loans. Yet they increase their short-term borrowing with the globalization of financial markets.

Thus, firm level variables are important both for long-term and short-term financing. The impact of the variables is the same, except profitability. The economic environment alters firms' decisions about financing. In an inflationary environment, firms prefer to use short-term debt financing rather than long-term. Increases in the cost of borrowing force firms to choose either short-term funding or equity financing. Due to the bankruptcy risk of borrowing, firms avoid selecting long-term funding as tax increases, but they benefit from tax shields by using short-term

financing. Good governance (less corruption) improves short-term borrowing, while it causes firms to shift from long-term financing to equity financing. Firms use more long-term debt financing in common law legal systems, while they borrow more short-term debt in civil law legal systems. The developed banking sector and presence of a stock market increases both long-term and short-term debt financing, while liquid stock markets allow firms to shift from debt financing to equity financing. Hence, if a country provides better economic and financial environments to firms by improving the economic environment and providing better governance and developed, efficient financial markets and globalized financial systems, the long-term financing increases.

6.2.1.1 Are the determinants for long-term and short-term financing different for small firms?

In the previous section, we demonstrated that larger firms have longer debt. This may be due to their easy access to international markets. On the other hand, the reason for smaller firms to hold short-term debt could be their close nature. In this section, we analyse whether the determinants of long-term and short-term debt structures are different for small firms as compared to large firms. Table 6.2 presents the results for debt financing decisions of small, medium, and large firms. For long-term debt to total assets, we confirm that both small and large firms follow the trade-off theory. Since lenders do not have as much information as managers of small firms, they prefer to provide long-term funding if they can secure their debt. Lenders secure their debt financing through collateral. Therefore, we confirm our hypothesis that the higher the collateral, the longer the debt firms can hold. Hall et al. (2004) find the same positive relation between tangibility and long-term debt to total assets

for UK small firms. However, small firms do not consider internal funds for their long-term debt financing decisions, while large firms follow the pecking order theory. Chittenden et al. (1996) also find no significant relation between profitability and long-term debt to total assets of small UK firms. They conclude that collateral is important for small firms' access to long-term debt, not profitability.

Most of the economic environment variables become insignificant for large firms. Only growth of the economy increases long-term debt financing of large firms. For small firms, growth also has a positive impact on long-term funding, while interest and tax have a negative effect on the long-term debt to total assets financing decision of small firms. As the cost of borrowing rises, small firms prefer short-term debt financing. Due to the bankruptcy risk, small firms borrow less long-term debt and select short-term funding as tax rates increase. Large firms do not consider the GDP per capita, inflation, interest, and tax in their long-term financing in opposition to our expectations.

The impact of financial environment variables on long-term financing indicates some differences between small and large firms. Corruption does not have any significant effect on small firms, while large firms prefer equity financing in a country with better governance as opposed to our expectations. Both small and large firms have less long-term debt in the countries with civil law legal systems. We confirm our hypotheses that the developed banking sector and the presence of a stock market ameliorate the long-term debt financing of small firms, while development of financial institutions does not have any significant impact on the long-term debt financing decisions of large firms in conflict with our expectations.

Since stock market complements the banks, the development of a banking system and the existence of stock markets help small firms to access long-term debt financing. As large firms already have access to national and international markets, developments in the national financial markets do not have any significant impact on their long-term debt financing decisions. Financial globalization affects the long-term funding of only large firms. Offshore bank loans increase, while offshore deposits to total deposits decrease long-term debt financing. Therefore, the developed banking system and the presence of an active stock market are very important for small firms to ameliorate long term external financing.

Table 6.2 Panel B reports the regression results for short-term debt to total assets of small, medium, and large firms. The results for short-term debt to total assets integrate with the long-term debt to total assets. Small and large firms match their short-term assets with the maturity matching principle. Both Chittenden et al. (1996) and Hall et al. (2004) find the same inverse relationship between tangibility and short-term debt to total assets for UK small companies. Small firms with less fixed assets can provide lower levels of collateral; therefore, they need to use more short-term debt financing. Both small and large firms do not consider profitability in their short-term funding decisions as opposed to our expectations. As GDP per capita and growth increases, small firms borrow more. However, increases in growth encourage large firms to prefer long-term debt rather than short-term debt. Small and large firms increase their short-term borrowing in spite of the increases in inflation and the interest rates. Small firms benefit from tax shields, while large firms do not consider the tax.

Table 6.2. Long and Short-term Debt to Total Assets for Small, Medium and Large Firms

This table presents the regressions of long-term and short-term debt to total assets on firm level, economic, and financial environment variables for small, medium, and large firms. Panel A presents the results for long-term debt to total assets and Panel B provides results for short-term debt to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

Panel A: Long-term Debt to Total Assets for Small, Medium, and Large Firms

LTD/TA	*Small*	*Medium*	*Large*
Tangibility	0.0165**	0.0578***	0.0910***
	(0.008)	(0.013)	0.029
Profitability	-0.0047	-0.0229***	-0.0175**
	(0.003)	(0.005)	(0.008)
GDP/Cap	0.0094	-0.0530***	-0.0099
	(0.006)	(0.009)	(0.019)
Growth	0.6932***	3.2670***	2.5369***
	(0.256)	(0.330)	(0.750)
Inflation	-0.0278	-0.0120	-0.1592
	(0.032)	(0.039)	(0.120)
Interest	-0.1790***	-0.0265	0.0725
	(0.034)	(0.039)	(0.093)
Tax	-0.6985***	-0.9599***	-0.3382
	(0.063)	(0.098)	(0.228)
Corruption	-0.0061	-0.0019	-0.0505*
	(0.010)	(0.012)	(0.028)
Civil	-0.0953***	-0.0311***	-0.0902***
	(0.010)	(0.011)	(0.030)
Dbacba	0.0602***	0.0503***	-0.0827
	(0.016)	(0.019)	(0.051)
Stockmrk	0.0363***	0.0734***	0.0193
	(0.010)	(0.018)	(0.041)
Turnover	-0.0031	0.0136***	0.0036
	(0.003)	(0.004)	(0.008)
Nrbloan	0.0476	0.3063***	0.5814**
	(0.066)	(0.104)	(0.229)
Offdep	0.0052	-0.0386	-0.1109**
	(0.021)	(0.024)	(0.055)
C	0.2423***	0.5933***	0.2900**
	(0.046)	(0.074)	(0.143)
Observation	12330	10768	2837
R^2	0.0628	0.0984	0.0494

Panel B: Short-term Debt to Total Assets for Small, Medium, and Large Firms

STD/TA	*Small*	*Medium*	*Large*
Tangibility	-0.2060***	-0.2356***	-0.1995***
	(0.011)	(0.015)	(0.029)
Profitability	0.0048	-0.0135***	-0.0063
	(0.004)	(0.005)	(0.010)
GDP/Cap	-0.0303***	-0.0616***	-0.0448**
	(0.007)	(0.011)	(0.023)
Growth	2.1777***	1.1281***	-1.4517**
	(0.288)	(0.394)	(0.736)
Inflation	0.2729***	0.1689***	0.1998*
	(0.040)	(0.043)	(0.116)
Interest	0.6366***	0.5554***	0.2437**
	(0.042)	(0.045)	(0.108)
Tax	1.0631***	0.9475***	0.0088
	(0.089)	(0.108)	(0.253)
Corruption	0.1564***	0.1668***	0.0511*
	(0.012)	(0.014)	(0.030)
Civil	0.1524***	0.1655***	0.0443
	(0.012)	(0.014)	(0.028)
Dbacba	0.1512***	0.1329***	0.1491***
	(0.018)	(0.022)	(0.043)
Stockmrk	0.1509***	0.0495***	0.1447***
	(0.010)	(0.019)	(0.037)
Turnover	-0.0326***	-0.0294***	-0.0231***
	(0.003)	(0.004)	(0.009)
Nrbloan	0.2501***	-0.2345**	-0.3636*
	(0.076)	(0.117)	(0.219)
Offdep	0.2002***	0.1557***	-0.0058
	(0.027)	(0.027)	(0.069)
C	-0.3020***	0.2233**	0.4867***
	(0.060)	(0.088)	(0.183)
Observation	12330	10768	2837
R^2	0.2556	0.1776	0.0647

When we look at the financial environment variables, both small and large firms increase their short-term financing in countries with better governance and developed financial institutions. Increases in offshore loans allow small firms to borrow more in the short term, while large firms prefer long-term financing. Financial globalization ameliorates the short-term financing of small firms as expected.

As a result, small and large firms follow the trade-off theory and maturity matching. However, the determinants are different in terms of the impact of the macroeconomic and financial environment variables of the country on small and large firms. Small firms are more sensitive to changes in the economic environment of the country than large firms. Alterations in the local economic environment of a country influence the small firms, but we could not find any significance for large firms except for growth. Since it is difficult for small firms to reach long-term debt financing, some of the financial environment variables become insignificant. A developed and efficient banking sector and the presence of a stock market are important for their long-term debt financing. Alternatively, the better governed, developed financial institutions and globalization boost their short-term borrowing. Unlike small firms, large companies have access to the international capital markets. Therefore, they can protect themselves against the shocks or changes in the local economy. That's why the policies instituted by local governments have a direct impact on small firms.

6.2.1.2. Are the results different for different size measures?

We test the robustness of our results by using different definitions of size. First, we use the logarithm of sales and then employ the logarithm of assets to proxy size. When we examine Table 6.3, we observe that results are very similar to those reported in Table 6.1. Larger firms have higher long- and short-term financing. We confirm that firms in the sample follow the theory. They match their long-term debt with their assets and they follow the pecking order.

Table 6.3. Long and Short-term Debt to Total Assets with Different Size Proxies

This table presents the regressions of long-term and short-term debt to total assets on firm level, economic, and financial environment variables by using different size proxy. Columns 1 and 2 present the results with the logarithm of sales and assets for long-term debt to total assets, while Columns 3 and 4 report the results for the logarithm of sales and assets for short-term debt to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	LTD/TA		STD/TA	
	Sale	*Asset*	*Sale*	*Asset*
Tangibility	0.0404***	0.0389***	-0.2094***	-0.2170***
	(0.007)	(0.007)	(0.008)	(0.008)
Profitability	-0.0132***	-0.0066**	-0.0055*	0.0009
	(0.003)	(0.003)	(0.003)	(0.003)
Size	0.0090***	0.0101***	0.0119***	0.0069***
Log(sale)	(0.001)	(0.001)	(0.001)	(0.001)
GDP/Cap	-0.0249***	-0.0241***	-0.0533***	-0.0486***
	(0.005)	(0.005)	(0.006)	(0.006)
Growth	2.5395***	2.6077***	2.0324***	1.9867***
	(0.182)	(0.182)	(0.209)	(0.211)
Inflation	-0.0415*	-0.0375	0.2093***	0.2069***
	(0.024)	(0.023)	(0.026)	(0.026)
Interest	-0.1905***	-0.1915***	0.4914***	0.5366***
	(0.026)	(0.025)	(0.030)	(0.030)
Tax	-0.7830***	-0.7828***	0.8002***	0.8107***
	(0.051)	(0.051)	(0.063)	(0.064)
Corruption	-0.0145**	-0.0145**	0.1485***	0.1427***
	(0.007)	(0.007)	(0.008)	(0.008)
Civil	-0.0698***	-0.0702***	0.1353***	0.1305***
	(0.007)	(0.007)	(0.008)	(0.008)
Dbacba	-0.0057	-0.0095	0.0908***	0.1118***
	(0.012)	(0.012)	(0.013)	(0.013)
Stockmrk	0.0991***	0.0995***	0.1583***	0.1605***
	(0.008)	(0.008)	(0.008)	(0.008)
Turnover	-0.0001	-0.0005	-0.0292***	-0.0310***
	(0.002)	(0.002)	(0.002)	(0.002)
Nrbloan	0.2160***	0.2219***	0.1372**	0.1564***
	(0.053)	(0.053)	(0.059)	(0.059)
Offdep	-0.0768***	-0.0780***	0.1331***	0.1326***
	(0.015)	(0.015)	(0.018)	(0.018)
C	0.3243***	0.3045	-0.0906**	-0.0839*
	(0.037)	(0.037)	(0.046)	(0.046)
Observation	25912	25935	25912	25935
R^2	0.0881	0.0909	0.2146	0.2079

The macroeconomic determinants also stay the same. The richness of the country allows firms to choose equity financing rather than long- or short-term funding,

while economic growth increases both long- and short-term borrowing. Uncertainties in the economy initiate shorter debt. Higher interest allows firms continue to borrow in the short-term, but they avoid acquiring long-term debt. Also, we confirm that firms follow the trade-off theory in their short-term debt financing decisions. However, they decrease their long-term debt financing as tax increases due to the high probability of failure.

The results for the financial environment variables are also robust to different definitions of size. We observe that the results are very similar to the previously reported ones. The only exception is offshore bank loans to GDP. We find a positive relation between this ratio and short-term debt to total assets as opposed to the insignificant association that we found previously. The higher the offshore loans, the more short-term debt firms undertake. Since offshore bank loans funnel more available funds into the domestic financial system, firms can borrow more. Firms prefer long-term debt financing in countries with a corrupt environment, while firms in countries with civil law legal systems acquire more short-term funding. We could not find any significant relationship between the developed banking system and long-term financing.

6.2.1.3. Are the determinants of long and short-term debt to total assets different for privately held firms?

We divide our sample into two subsamples according to firms that are privately held and publicly listed. Columns 1 and 2 of Table 6.4 reports the results for long-term debt to total assets of privately held and listed firms. We confirm the importance of firm level determinants for privately held firms for long-term debt to total assets. We

also find that the presence of small firms is inversely related with long-term debt to total assets for both privately held and listed firms as we expected. Both the privately held and listed firms are sensitive to changes in the economic environment of the country. Economic growth increases the long-term debt of privately held and listed firms, whereas uncertainty of the economy causes listed firms to prefer short-term debt to total assets. Privately held firms continue to be financed by long-term debt in spite of high interest rates. We could not find any significant relationship for GDP per capita and tax in both types of firms as opposed to our expectations. Long-term debt financing decisions of listed firms are affected by the legal system of the country. As opposed to what we discovered previously, listed firms in countries with civil law legal systems prefer long-term debt rather than equity. Better governance, developed banking systems, and financial globalization ameliorate the long-term funding of privately held firms. Hence, privately held firms are more sensitive to changes in the financial environment than listed firms.

Columns 3 and 4 in Table 6.4 report the outcome of short-term debt to total assets for privately held and listed firms. The results of short-term debt to total assets complement the results of long-term debt to total assets. Privately held and listed firms continue to be financed by short-term debt to total assets in spite of the uncertainties in the economy. Privately held firms only consider inflation and the interest rate in their short-term debt financing decisions. However, financial environment variables have a greater impact on the short-term debt funding of privately held firms compared to listed firms. Listed firms consider only stock market turnover for their short-term debt financing decisions. As stock markets become more liquid, they may prefer equity markets rather than debt markets to

raise funding. On the other hand, the only thing that does not affect the short-term debt funding decisions of privately held firms is the legal system.

Table 6.4. Long and Short-term Debt to Total Assets for Privately Held and Listed Firms

This table presents the regressions of long-term and short-term debt to total assets on firm level, economic, and financial environment variables for private and listed firms. Columns 1 and 2 presents the results for long-term debt to total assets, while Columns 3 and 4 reports the results for short-term debt to total assets. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	LTD/TA		STD/TA	
	Private	Listed	Private	Listed
Tangibility	0.0246***	0.0305	-0.2091***	-0.1595***
	(0.008)	(0.035)	(0.009)	(0.032)
Profitability	-0.0127***	-0.0056	-0.0012	-0.0028
	(0.003)	(0.012)	(0.003)	(0.012)
Small	-0.0626***	-0.0441**	-0.0698***	-0.0233
	(0.004)	(0.021)	(0.005)	(0.021)
Large	0.0406***	-0.0176	0.0495***	0.0121
	(0.008)	(0.019)	(0.009)	(0.019)
GDP/Cap	0.0070	-0.0309	-0.0083	-0.0788***
	(0.005)	(0.024)	(0.005)	(0.029)
Growth	2.6724***	3.9173***	0.3571	-0.4016
	(0.220)	(1.099)	(0.247)	(1.183)
Inflation	-0.0157	-0.1734***	0.1176***	0.1170*
	(0.028)	(0.056)	(0.031)	(0.065)
Interest	0.0618*	0.1512	0.3432***	0.0813
	(0.033)	(0.104)	(0.038)	(0.106)
Tax	-0.0778	0.2331	-0.0167	-0.9550***
	(0.079)	(0.257)	(0.087)	(0.279)
Corruption	0.0174*	0.0019	0.0573***	0.0341
	(0.009)	(0.035)	(0.010)	(0.037)
Civil	-0.0166	0.1478***	-0.0112	-0.0306
	(0.010)	(0.051)	(0.011)	(0.054)
Dbacba	0.0665***	-0.0037	0.0698***	0.0857
	(0.012)	(0.060)	(0.014)	(0.064)
Turnover	-0.0022	0.0176*	-0.0077***	-0.0302***
	(0.002)	(0.009)	(0.003)	(0.010)
Nrbloan	0.1561***	0.1307	0.1565**	-0.0199
	(0.058)	(0.236)	(0.067)	(0.233)
Offdep	-0.0330*	-0.0176	0.1112***	0.0200
	(0.017)	(0.055)	(0.020)	(0.067)
C	0.0077	0.1138	0.2851***	1.1474***
	(0.048)	(0.216)	(0.055)	(0.256)
Observation	21961	1970	21961	1970
R^2	0.1012	0.0903	0.1546	0.0826

6.2.2. The determinants of long-term debt to total debt decisions of firms

As we discussed in the Chapter 3, we use long-term debt to total debt as a dependent variable for debt maturity. The estimated equation is the long-term debt to total debt against firm level, economic, and financial environment variables. As a firm level variable, we also include leverage in the equation as an independent variable. The functional form of the equation estimated and the expected signs of the variables are as follows:

$$LTD/TD_{i,t} = \alpha_t + \sum_{j=1}^{n} \beta_j F_{i,j,t} + \sum_{k=1}^{n} \gamma_k E_{i,k,t} + \sum_{l=1}^{n} \delta_l Fin_{i,l,t} + \varepsilon_{i,t} \qquad (6.3)$$

$i = 1, 2, ...,10{,}839$; $t = 1999,\ldots,2004$

$LTD/TD_{i,t}$ is long-term liabilities to total liabilities for the i^{th} firm at time t. $F_{i,j,t}$ indicates the firm level variables, leverage, asset tangibility, profitability, and size, while $E_{i,k,t}$ represents the economic environment variable, GDP per capita, growth, inflation, interest, and tax at time t. $Fin_{i,l,t}$ presents the financial environment variables, corruption, legal system, deposit money bank assets to central bank assets, stock market dummy, stock market turnover, offshore bank deposits to GDP, and offshore bank deposits, to domestic bank deposits at time t.

Table 6.5 presents the regression results for the impact of firm level, economic, and financial environment variables on debt maturity. The coefficient for leverage is positive indicating that the higher the debt, the longer the maturity of the firm. The higher levels of leverage increase the liquidity risk. Firms with more leverage have no incentive to borrow short-term; thus, as increases in leverage amplifies the liquidity risk, firms with higher leverage are expected to borrow more long-term

debt (Stohs and Mauer, 1996). Tangibility has a positive impact on the long-term debt to total debt. As discussed in the trade-off and pecking order theories, tangible assets can be used as collateral. The higher the tangible assets, the more long-term debt firms can borrow (Rajan and Zingales, 1995; Titman and Wessels, 1988) since collateral mitigates the moral hazard problem caused by the conflict of interest between shareholders and lenders (Jensen and Meckling, 1976). Moreover, this positive relationship is also supported by the maturity matching principle. A firm with more tangible assets uses more long-term debt to match their long-term liabilities with long-term assets (Booth et al., 2001). Thus, we confirm our hypothesis that higher tangible assets lengthen the duration of the debt.

The coefficient for profitability is negative indicating that as profitability increases, long-term debt to total debt decreases. In accordance with the pecking order theory, profitable firms have less incentive to borrow especially in the long term as they can use their internal sources for financing (Myers and Majluf, 1984). Booth et al. (2001) find the same inverse relation. Therefore, the duration of debt shortens as the profitability of the firms improves. The size of the firm also has an impact on the debt duration. We find small being inversely related, while large is positively related with debt maturity. Small firms use more short-term debt to reduce the flotation costs of issuing long-term debt (Titman and Wessels, 1988). Thus, we confirm our hypothesis that the larger the firm, the longer the maturity of the debt.

Table 6.5. Determinants of Long-term Debt to Total Debt

This table presents the regressions of long-term debt to total debt on firm level, economic and financial environment variables. Leverage is the ratio of total liabilities to total asset. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	LTD/TD
Leverage	0.1826***
	(0.013)
Tangibility	0.2364***
	(0.014)
Profitability	-0.0148***
	(0.005)
Small	-0.0391***
	(0.007)
Large	0.0268**
	(0.011)
GDP/Cap	0.0720***
	(0.010)
Growth	3.1575***
	(0.388)
Inflation	-0.2043***
	(0.040)
Interest	-0.6467***
	(0.044)
Tax	-1.4424***
	(0.105)
Corruption	-0.2199***
	(0.013)
Civil	-0.2302***
	(0.013)
Dbacba	-0.1245***
	(0.022)
Stockmrk	-0.0088
	(0.017)
Turnover	0.0219***
	(0.004)
Nrbloan	0.4069***
	(0.109)
Offdep	-0.2232***
	(0.028)
C	0.2713***
	(0.079)
Observation	23259
R^2	0.1506

Macroeconomic coefficients have also influenced the debt maturity decisions of firms. The coefficient for GDP per capita is positive for long-term debt to total debt

indicating that as the income of a country increases, firms extend the maturity of their debt. As countries become richer and economically more developed, they can offer longer maturity to firms in accordance with our expectations. The coefficient for GDP growth is positive implying that as countries grow, firms can use more long-term debt financing. Wealth, economic development, and higher growth help firms to finance with more mature debt. The impact of inflation on long-term debt to total debt is negative suggesting that increases in inflation shorten the debt maturity. Booth et al. (2001) find the same relationship between inflation and long-term debt. As the uncertainty in the economy increases, borrowing becomes more costly, especially in the long term and lenders are keen to provide short-term funding. Therefore, we confirm our hypothesis that there is a negative relationship between uncertainty in the economy and debt maturity. Interest has a negative coefficient indicating that as interest rates rise, firms avoid financing themselves with long-term debt due to the higher cost of interest expenses. Because of the adverse selection issue, lenders ask for higher rates to overcome the default risk (Sarkar, 1999). As expected, the higher the risk, the higher the interest rate. As such, firms experience shorter maturity.

The coefficient for tax is negative proposing that firms in countries with higher tax rates use shorter maturity as opposed to our expectations. This result is difficult to interpret. Higher tax rates provide incentives to firms to borrow more due to tax shields. However, at the same time, increased borrowing heightens the risk of bankruptcy and financial distress costs. Bankruptcy costs are very important for small firms as they have greater business risk and a higher probability of failure. Also, the higher probability of failure decreases the value of the firm. Therefore,

increases in the probability of failure and decreases in the value of the firm may cause firms in developing countries to deviate from the trade-off theory for debt maturity decisions. In contrast, Booth et al. (2001) find a positive relationship between tax and long-term debt. Since the firms included in that study are large listed companies, the probability of failure is very low. Our results confirm that firms shorten their maturity due to the bankruptcy risk of debt.

The financial environment also has an impact on the debt maturity decisions of firms. The coefficient for corruption is negative indicating that as corruption increases debt maturity also increases as opposed to our expectation. Firms in developing countries follow the efficient grease hypothesis. Since it is difficult to find long-term debt financing in developing countries, firms may pay bribes to have access to long-term funding. Therefore, firms in countries with high corruption have longer maturity of debt. Firms in those countries with civil law legal systems have shorter debt maturity. Since civil law legal systems do not provide better protection to external investors than common law legal systems, firms in countries with civil law legal systems have shorter maturity. Financial institutions also have an effect on the debt maturity decisions of firms. Surprisingly, developed banking systems cause firms to have shorter maturity. Since most of the firms in our sample are small and medium sized enterprises, it is difficult to find long-term financing even if the country has a developed banking system. The existence of a stock market does not have any effect on the debt maturity decisions of firms. The coefficient for stock market turnover is positive suggesting that as stock market turnover increases, debt maturity of firms also rises. As discussed by Demirguc-Kunt and Levine (1996), stock market development also encourages greater use of bank financing. Therefore,

as stock markets become more liquid, firms have access to longer maturity of debt. As offshore banking loans increase, more funds become available and firms can extend their maturity of debt. Alternatively, increases in offshore bank deposits when compared to domestic bank deposits decreases the available funding. As a result, long-term debt decreases.

6.2.2.1. Are the determinants of debt maturity different for small firms?

In the previous section, we demonstrated that larger firms have longer debt maturity. The reason for this could be their easy access to international markets. Since small firms are opaque and have important adverse selection problems, lenders may not want to provide funding, especially long-term financing in the amount that they offer to large firms. Therefore, the determinants of debt maturity may indicate differences for small firms. This difference could be due to either firm-specific characteristics or because of the environment in which they run their business. In this section, we analyse whether the determinants of the debt maturity structure are different for small firms as compared to large firms. Table 6.6 presents the results for long-term debt to total debt of small, medium, and large firms. The coefficient for tangibility is positive for both small and large firms. In accordance with the trade-off and pecking order theory, the greater the tangible assets, the longer the debt maturity firms may access. Since collateral mitigates the moral hazard problem, lenders are willing to offer longer maturity to these firms. Small firms borrow less long-term debt when they have enough internal resources to finance in accordance with the pecking order theory. Profitability does not have a significant impact on the debt maturity decisions of large firms. Since small firms are opaque and have important adverse selection problems, they have high information costs. To

compensate for these information costs, lenders ask for higher borrowing rates. Therefore, we confirm our hypothesis that small firms prefer internal financing to avoid high borrowing costs.

Table 6.6. Long-term Debt to Total Debt for Small, Medium, and Large Firms

This table presents the regressions of long-term debt to total debt on firm level, economic, and financial environment variables. Column 1 (2) presents the results for small (medium) firms and Column (3) reports the results for large firms. Leverage is the ratio of total liabilities to total asset. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

LTD/TD	Small	Medium	Large
Leverage	0.2116***	0.1712***	0.0529
	(0.019)	(0.021)	(0.042)
Tangibility	0.2362***	0.2313***	0.2298***
	(0.019)	(0.022)	(0.045)
Profitability	-0.0141**	-0.0227***	-0.0025
	(0.007)	(0.008)	(0.014)
GDP/Cap	0.1034***	0.0358**	0.0801**
	(0.014)	(0.015)	(0.034)
Growth	2.2009***	2.8912***	4.2248***
	(0.637)	(0.614)	(1.205)
Inflation	-0.1336**	-0.2354***	-0.3437*
	(0.058)	(0.063)	(0.177)
Interest	-0.6806***	-0.6199***	-0.1980
	(0.064)	(0.064)	(0.137)
Tax	-1.6898***	-1.4701***	0.0830
	(0.144)	(0.167)	(0.374)
Corruption	-0.2016***	-0.2277***	-0.1746***
	(0.020)	(0.020)	(0.045)
Civil	-0.3091***	-0.1923***	-0.1833***
	(0.020)	(0.018)	(0.046)
Dbacba	-0.0207	-0.1675***	-0.3443***
	(0.033)	(0.032)	(0.075)
Stockmrk	-0.0913***	0.0921***	-0.0591
	(0.023)	(0.030)	(0.073)
Turnover	0.0151**	0.0338***	0.0262**
	(0.006)	(0.006)	(0.013)
Nrbloan	0.2468	0.5429***	1.0760***
	(0.165)	(0.174)	(0.343)
Offdep	-0.1794***	-0.2768***	-0.2320**
	(0.043)	(0.040)	(0.093)
C	0.1825	0.4425***	-0.1456
	(0.117)	(0.120)	(0.255)
Observation	10350	10164	2745
R^2	0.1386	0.1778	0.0987

The economic environment also affects the debt maturity decisions of small and large firms. The only difference between them is the impact of interest and tax since we found no significant relationship between interest and debt maturity and tax and debt maturity for large firms. The impact of the other macroeconomic variables stays the same as the overall results. Therefore, the richer the country, the longer the debt maturity available to both small and large firms. Economic growth increases, while inflation shortens the maturity of debt for both types of firms. As interest and tax increase, small firms borrow less long-term debt. Since increases in the interest rate make borrowing more costly for small firms, they shorten the debt maturity. Alternatively, as suggested by the trade-off theory, firms borrow more to benefit from tax shields. However, there is a trade-off between the benefits of tax and bankruptcy costs. Since small firms are more likely to go bankrupt, they avoid lengthening their debt due to the bankruptcy risk. Therefore, the economic stability of a country is an important aspect in long-term debt financing for both small and large firms. Small firms are more sensitive to the changes in the interest and tax rates.

The impact of the financial environment also demonstrates some differences between small and large firms. Corruption and the legal system have the same inverse effect on the debt maturity decisions of firms. Both small and large firms have shorter maturity in countries with civil law legal systems, while greater corruption increases their long-term debt. A developed banking sector has no significant impact on the maturity decisions of small firms, while the development of the banking sector shortens the debt maturity of large firms. The existence of a stock market in a country shortens the debt maturity of small firms. Small firms

prefer equity financing rather than debt financing in countries with efficient financial markets. Large firms do not consider the existence of a stock market in their maturity decisions as they have access to international financial markets. Financial globalization affects the maturity decisions of both small and large firms. We could find no significant relation between offshore banks loans and debt maturity for small firms, while it is positively related to debt maturity for large firms. In contrast, offshore deposits to total deposits decrease debt maturity of both types of firms.

6.2.2.2. Are the results different for different size measures?

We test the robustness of our results by using different definitions of size. First, we use the logarithm of sales and then the logarithm of assets to proxy size in Table 6.7. Our results are robust for the different definitions of size. We confirm that larger firms have longer debt maturity. Larger firms usually have more stable cash flows and lower bankruptcy risk (Pettit and Singer, 1985). They also have access to international capital markets. Therefore, being a large firm extends the maturity of debt. We confirm that firms in the sample follow the theory. They borrow more long-term debt when they have higher collateral and follow the pecking order. If they have enough internal resources, they prefer to be financed by them.

The impact of the economic environment variables stays the same. The richness of the country and economic growth allows firms to lengthen their debt maturity, while uncertainty in the economy, the cost of borrowing, and taxes result in shorter debt maturity structures.

Table 6.7. Long-term Debt to Total Debt with Different Size Proxy

This table presents the regressions of long-term debt to total debt on firm level, economic, and financial environment variables. Column 1 presents the results for logarithm of sales and Column 2 reports the results for the logarithm of assets. Leverage is the ratio of total liabilities to total asset. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise.. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems; and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	Sale	*Asset*
Leverage	0.1933***	0.1901***
	(0.013)	(0.013)
Tangibility	0.2365***	0.2395***
	(0.014)	(0.014)
Profitability	-0.0145***	-0.0101**
	(0.005)	(0.005)
Size	0.0027*	0.0093***
	(0.002)	(0.002)
GDP/Cap	0.0619***	0.0616***
	(0.010)	(0.010)
Growth	3.3452***	3.5577***
	(0.388)	(0.388)
Inflation	-0.1987***	-0.1919***
	(0.040)	(0.040)
Interest	-0.6594***	-0.7015***
	(0.045)	(0.045)
Tax	-1.5197***	-1.5097***
	(0.104)	(0.104)
Corruption	-0.2171***	-0.2126***
	(0.014)	(0.014)
Civil	-0.2381***	-0.2365***
	(0.013)	(0.013)
Dbacba	-0.1294***	-0.1593***
	(0.023)	(0.023)
Stockmrk	0.0081	0.0088
	(0.017)	(0.017)
Turnover	0.0202***	0.0214***
	(0.004)	(0.004)
Nrbloan	0.4677***	0.4751***
	(0.109)	(0.109)
Offdep	-0.2499***	-0.2477***
	(0.028)	(0.028)
C	0.3004***	0.2316***
	(0.079)	(0.080)
Observation	23234	23259
R^2	0.147	0.150

We find the same effect of financial environment variables on the debt maturity decisions of firms when we use different definitions of size. Corruption helps firms lengthen their debt maturity, while firms in countries with civil law legal systems have shorter debt maturity. A developed banking sector cuts the debt, while turnover helps firms increase their debt maturities. The existence of a stock market does not have any significant impact on their maturity decisions. Increases in offshore banking loans extend the debt maturity, while a rise in offshore bank deposits shortens the maturity of debt.

Our results are robust to different definitions of size. Regardless of the size definitions we used, based on the number of employees, sales, and total assets of the company, we find that debt maturity is longer for larger firms.

6.2.2.3. Are the determinants of debt maturity different for privately held firms?

We divide our sample into two subsamples according to firms that are privately held and publicly listed. We confirm the importance of firm level determinants for privately held firms. The higher debt levels increase the maturity of debt both for privately held and listed firms. Both privately held and listed firms follow the trade-off theory. As collateral increases, they lengthen the maturity. We could not find any significant relationship among the other firm level variables for listed firms. Alternatively, private firms prefer shorter maturity when they have enough internal funds and when the size of the firm is small. Since privately held firms are less transparent and have more information asymmetry issues when compared to publicly listed companies, they use internal financing. If they are smaller firms, then it becomes difficult to access long-term debt financing.

Table 6.8. Long-term Debt to Total Debt for Privately Held and Listed Firms

This table presents the regressions of long-term debt to total debt on firm level, economic, and financial environment variables. Column 1 presents the results for private firms and Column 2 reports the results for listed firms. Leverage is the ratio of total liabilities to total asset. Tangibility is measured as net fixed assets to total assets. Profitability is calculated as the earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes a value of one and zero otherwise. Large takes a value of one if the firm has more than 500 employees and zero otherwise. GDP/Cap is GDP per capita in U.S. dollars. Growth is the annual growth rate of GDP. Inflation is measured based on a GDP deflator. Interest is the lending rate. Tax is the highest tax rate shown on the schedule of tax rates applied to the taxable income of corporations. Corruption measures the perceptions of corruption in a country. Civil is a dummy variable equal to one if the country has civil law legal systems; and zero for common law legal systems. Dbacba is the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmrk is a dummy variable equal to one if the country has a stock market and zero otherwise. Turnover is the ratio of total shares traded to market capitalization. Nrbloan is the ratio of offshore bank loans relative to GDP. Offdep is the ratio of offshore bank deposits to domestic bank deposits. The reported R^2 is the adjusted R^2. Standard errors are in parentheses. *** indicates a level of significance at 1%, ** a level of significance at 5%, and * a level of significance at 10%.

	Private	Listed
Leverage	0.2025***	0.1815***
	(0.015)	(0.048)
Tangibility	0.2330***	0.1434***
	(0.015)	(0.051)
Profitability	-0.0168***	0.0015
	(0.005)	(0.017)
Small	-0.0303***	-0.0220
	(0.008)	(0.034)
Large	0.0139	-0.0269
	(0.013)	(0.028)
GDP/Cap	0.0746***	0.0558
	(0.010)	(0.035)
Growth	4.3167***	3.4378*
	(0.445)	(1.792)
Inflation	-0.0972**	-0.2427***
	(0.048)	(0.088)
Interest	-0.3875***	-0.0724
	(0.058)	(0.153)
Tax	-0.5196***	1.6790***
	(0.161)	(0.501)
Corruption	-0.1528***	-0.0487
	(0.017)	(0.056)
Civil	-0.1172***	0.1827**
	(0.020)	(0.079)
Dbacba	-0.0503**	-0.2447**
	(0.024)	(0.096)
Turnover	0.0066	0.0646***
	(0.004)	(0.015)
Nrbloan	0.3337***	0.0232
	(0.123)	(0.389)
Offdep	-0.1886***	-0.0434
	(0.031)	(0.092)
C	-0.2058**	-0.6954**
	(0.101)	(0.352)
Observation	19381	1875
R^2	0.1307	0.1529

Privately held firms are more sensitive to changes in the economic environment of the country than listed firms. The richness of the country and economic growth help privately held firms extend their long-term financing, while uncertainty and the cost of borrowing shorten it. Privately held firms in countries with high inflation and high interest rates avoid borrowing long-term debt. We could not find any significant relationship between GDP per capita and interest with debt maturity for publicly listed firms. Tax has the opposite impact on long-term debt to total debt decisions of privately held and listed firms. For private firms, tax has a negative relation due to bankruptcy costs, while for listed firms, it has a positive impact from the benefit from tax shields.

Some of the financial environment variables become insignificant for listed firms. Corruption and financial globalization do not significantly influence the long-term debt to total debt decisions of listed firms. Listed firms in countries with civil law legal systems have longer maturity, while privately held firms in those countries have shorter maturity. A developed banking sector has a negative impact on the long-term debt to total debt, while turnover increases the maturity of listed firms. Privately held firms do not consider stock market turnover in their debt maturity decisions. Unlike listed firms, financial globalization has an impact on the long-term debt to total debt decisions of private firms. Increases in offshore loans lengthen the debt maturity of privately held firms, while increases in offshore deposits shorten it.

6.3. Conclusion

This chapter analyzes the determinants of the debt maturity structure of firms in developing countries. Previous studies have mainly focused on large listed

companies. However, it is not possible to accept their results for small and privately held companies. As opposed to previous research, we investigate the determinants of debt maturity structures in developing countries, specifically for small and privately held firms. About 90% of privately held companies and about 70% of listed firms are small and medium sized enterprises in our sample. We use survey data from the World Bank Enterprise Survey. Unlike the previous literature, our main focus is on small firms in developing countries.

We see that firms in a country with a stock market have higher leverage and debt maturity than firms in a country without a stock market. This is especially true for small firms. Therefore, size has an important impact on the debt maturity decisions of firms. Being a small firm shortens the maturity of debt. Larger companies have longer debt maturity as they are more diversified and have a lower probability of failure. On the other hand, information asymmetry, high inflation, and the cost of interest cause small firms to have a shorter debt maturity. Hence, small firms are more sensitive to economic environment alterations than large firms.

We find that corruption, legal systems, financial institutions, and financial globalization have an impact on the debt maturity decisions of firms. Firms use more debt financing in countries with a civil law legal system and a less corrupt environment. Alternatively, corruption increases the long-term debt financing of firms. Firms in countries with developed banking systems and stock markets have higher debt financing, while firms in countries with an active and liquid stock market prefer equity financing. Financial globalization increases funding in the

domestic financial system of a country; therefore, external financing of firms ameliorates.

Small and large firms are differently affected by the institutional environment. The presence of a stock market is the only factor that affects the debt financing decisions of large firms. In contrast, financial development and the existence of a stock market encourage small firms to increase long-term debt financing. The impact on corruption, the legal system, financial institutions, and financial globalization on short-term debt financing stays the same for small firms in accordance with the overall results. Financial institution is the only factor that affects the long-term debt financing decisions of large firms. Hence, the financial environment of a country has a direct impact on the financing decisions of firms, especially small firms. In order to meet the external financing needs of small firms, governments should provide better governed, efficient, and developed banking systems and stock markets, as well as globalized financial markets to give firms a chance to find external sources.

In conclusion, debt maturity structure theories are portable for small firms. The main difference between small and large firms can be found in the economic and financial environments. Since small firms are more opaque and have information asymmetry problems, they do not have access to international markets; therefore, they are more exposed to changes in the local economic environment. That's why local governments should be careful when establishing local economic policies that have a direct impact on the small firms.

CHAPTER 7

CONCLUSION

7.1. Introduction

The purpose of the chapter is to summarize the main findings, emphasize the limitations of the thesis and provide policy implications. The thesis examined the external financing decisions of firms, specifically small and privately held companies in developing countries by using World Bank Enterprise Survey. To our knowledge, this is the first thesis to use the Enterprise Survey to examine the leverage and debt maturity levels and determinants of capital structure and debt maturity of firms. Unique feature of the database is its coverage of SMEs. About 90 percent of our sample is small and medium size enterprises and about 92 percent is the privately held companies. As opposed to previous studies, our main focus is on the small and privately held firms in developing countries, which are more representative of the corporate sector in those countries.

Previous studies do the analysis on either large listed companies in developed and developing countries or they focus on the SMEs in European countries (Rajan and Zingales, 1995; Booth et al., 2001; Bartholdy and Mateus, 2008; Daskalakis and Psillaki, 2008). Therefore, it could be misleading to generalize their results for the small and privately held firms. By using World Bank Enterprise Survey, we analysed the leverage and debt maturity levels and determinants of capital structure and debt maturity of firms in developing countries. We examined the difference between small and large firms and privately held and listed companies.

We find that small firms are less levered and have shorter maturity than large firms. Previous studies discuss whether the impact on external financing is due to the firm-specific factors or country variables. The results are mixed. Some studies, such as

Daskalakis and Psillaki conclude that differences in capital structure is due to firm-specific factors; while, Hall et al. (2004) discuss that the reason might be the country factors. We conclude that the reason for different capital structure and debt maturity is the economic and financial environment of a country. If the countries can provide stable, reliable and developed environment, it becomes easier for small firms to access the external funding. If smaller firms can easily reach the external financing, they start behaving in accordance with the capital structure and debt maturity theories.

The remainder of this chapter is organized as follows. Section 7.2 summarizes the main findings. Section 7.3 provides the policy implications and section 7.4 presents the limitations and further research.

7.2. Summary and conclusion

In the stylized facts chapter, we examine the properties of data since this is the first thesis to use World Bank Enterprise Survey. We first try to answer whether the leverage and debt maturity levels are different for small and large companies. We find that small firms are less levered and shorter maturity than large firms in developing countries. Secondly we examine the differences in levels for privately held and listed companies and we show that listed firms have higher leverage and longer maturity than privately held companies. Next, we investigate the impact of presence of a stock market on leverage and debt maturity levels. We conclude that firms in countries with stock market have higher levels of leverage and longer maturity levels than firms in countries without a stock market. This difference is even higher for small firms.

In the determinants of capital structure and debt maturity chapters, we investigate the determinants of capital structure and debt maturity decisions of firms in developing countries. We first look at the answer to the following question; Is there a size effect on the capital structure and debt maturity decisions of firms? We confirm that size has a significant impact on the external financing choices and firms in the sample follow the capital structure and debt maturity theories. Secondly we analyze whether the determinants of capital and debt maturity structure different for small firms. Both small and large firms follow the maturity matching principle. They match their long-term assets with long-term debt. We find that long-term debt financing boosts with higher levels of collateral. Booth et al. (2001), Chittenden et al. (1996), Daskalakis and Psillaki (2008) and Hall et al. (2004) also find the same inverse relation. The firms follow the pecking order theory for the sample and we expected to have the same relation for small firms. Surprisingly we could not find any significant relation between profitability and leverage, long-term debt and short-term debt to total assets for small firms. Chittenden et al. (1996) find the same insignificant relation by using long-term debt to total assets as dependent variable. They conclude that the vital factor for long-term debt is collateral, not profitability for small firms. Moreover, Bartholdy and Mateus (2005) could not find any significant relation between profitability and leverage. They infer that pecking order theory is applicable for the large market financed firms rather than small bank-financed companies. This relation is also supported by Frank and Goyal (2003). They also find that pecking order theory is more likely for large firms than small firms in the US. Hence, unlike most studies (Daskalakis and Psillaki, 2008; Hall et al., 2004), we conclude that small firms do not follow the pecking order. On the

other hand, when we use long-term debt to total debt as a dependent variable in debt maturity model, we find that small firms follow the pecking order. Therefore, when the external financing is accessible, small firms behave according to the pecking order theory if there are enough internal funds.

Thirdly we examine the impact of economic environment on the financing decisions of firms and we find that it has effect on the leverage and debt maturity decisions of firms. The fiscal and monetary policy decisions of firms have an impact on the external financing decisions of firms. This effect is higher for small firms. Finally we investigate the effect of financial environment on the capital and debt maturity decisions of firms. We show that the financial environment has significant impact on the external financing decisions. Firms in a country with less corruption and civil law legal systems have more external financing. Moreover, developed banking systems and the existence of a stock market boosts the debt financing of firms. The efficient stock markets make firms to prefer equity financing rather than debt financing. Financial globalization enables firms to have more debt financing. Thus, if the countries can decrease corruption, adopt business friendly legal systems and establish financial markets they can provide more funding and longer maturity to their businesses. The important thing is that small firms benefit much more than large firms.

In conclusion, the main difference between small and large firms derives from the economic and financial environment of the country. Small firms are more sensitive to the changes in their local economic and financial environment than large firms. Hence, the inefficiencies in the economic environment and underdeveloped financial

environment can be seen as the main reasons for small firms' lower external financing. For large firms, firm-level factors are important in their leverage and debt maturity decisions. Economic and financial environments do not have much impact on large firms.

7.3. Policy implications

This research concludes that the main difference between the small and large firms derives from the economic and financial environment of a country. Since large firms have access to international financial markets, they are less exposed to the shocks in the local environment as opposed to small firms. Uncertainties in the economy cause small firms to borrow less while they continue to borrow despite increases in the cost of borrowing but they avoid long-term financing. Increases in the tax rate boost the short-term borrowing but due to the probability of failure they decrease their long-term financing. Therefore, governments' decisions on fiscal and monetary policies have influenced the debt financing of small firms more than large firms. Hence, to be able to increase the external financing of small firms, governments by using fiscal and monetary policies should provide stability in the economy.

As economical environment, the financial environment of the country influences the external financing decisions of firms. Corruption, legal system, development of financial institutions and financial globalization has an impact on the external financing decisions of small firms. The inefficiencies and underdeveloped financial environment in a country reduce the debt financing of small firms. Thus, governments should improve the financial environment by providing better

governance mechanisms; developing banking system and stock market as well as globalizing their financial markets.

7.4. Limitations and further research

We try to discuss and explain the determinants of capital structure and debt maturity decisions of firms by referring to the capital structure theories. But the proxies that we generate can be used to test more than one theory. For example, we use asset tangibility to proxy collateral levels of firms. All theories, trade-off, agency and pecking order, assume positive relation. We find this positive relation for long-term debt financing. But we cannot differentiate among the theories, just using one proxy. Therefore, it is not possible to identify the differences among the theories by using our empirical results. This is one of the limitations of this thesis.

Another limitation of this study is the application of a static panel model. Most of the recent studies use the dynamic models to test the capital structure and debt maturity decisions of firms. Since the sample includes firm-level data for two or three years, it is not possible to apply the dynamic model. Therefore, we use the static model due to data limitations. Another limitation is that we could not find appropriate small firm benchmark. Due to unavailability of the data, we could not compare our sample for small firms to small firms in developed countries. We tried to do the comparisons with previous studies but it is not possible to find the perfect match. There are differences in the definitions of variables, especially for leverage and debt maturity ratios. Some of the determinants applied in the model, have not been used in the other SME studies. As a future research, since Orbis database is now available, we may do the same analysis for developed countries. We could not

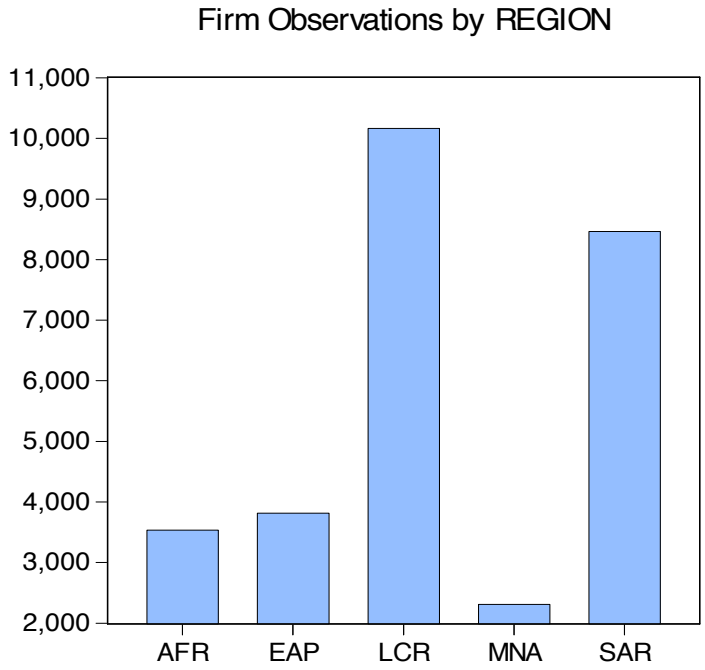
apply the database to compare the sample in the thesis and developed countries because it is not possible to match the sample based on the years. Orbis database includes the firm-level data for the last five years.

As we have already found, the developed and efficient financial institutions are important for small firms to access the external financing. Therefore, as a further research, we may investigate whether it is easy to access to the banking system in a country. In the literature, it is believed that increases in number of banks and branches decrease the information asymmetries and transaction costs. Therefore, the availability of credit to local firms boosts with increases with physical proximity; as a result of that, more funding opportunities become available especially for small firms. Thus, we may investigate the effect of physical proximity in a country or region on the capital structure decisions of small firms.

In addition to that, it could be interesting to analyze the effect of the recent financial crisis on the external financing decisions of small firms. We have found that the economic environment of a country has affected the debt financing decisions of small firms more than large firms. We can expect that the impact of the recent financial crisis on small firms should be more than large firms. Therefore, as a further research, we may investigate the impact of the recent financial crisis on the external financing decisions of small firms.

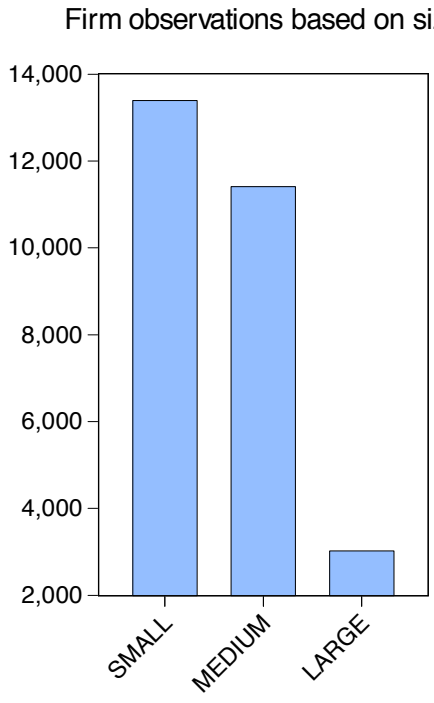
Graph 1. Firm Observation by Region

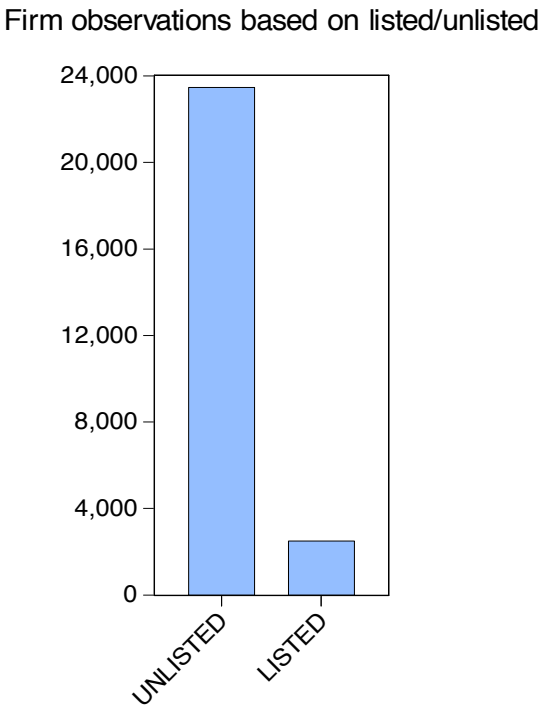
The chart below illustrates the number of firm observations based on the regions. AFR symbolises African region. EAP is the East Asia and Pacific region. LCR stands for the Latin America and Caribbean region. MNA is the Middle East and North Africa region, while SAR is South Asia.



Graph 2. Firm Observations Based on Size/Listed or Unlisted

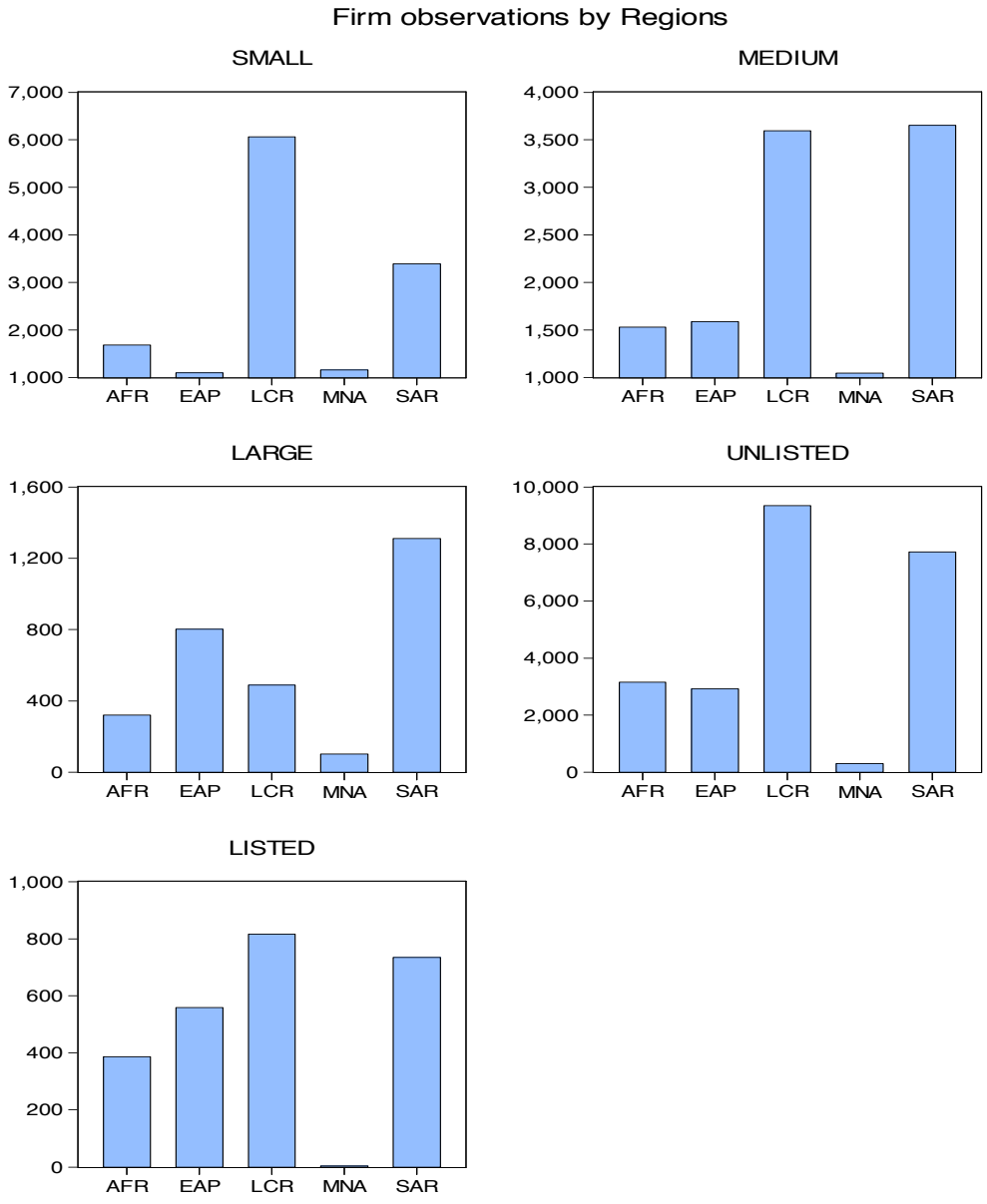
The charts below illustrate the total number of firm observations. The first chart is based on size demonstrating whether the firms are small, medium, or large sized. Small firms employ less than 50 employees. Medium firms have 50 to 500 employees, while large firms have more than 500 employees. The second chart presents the number of observations belonging to listed or unlisted firms. Listed are those firms that are publicly held. Unlisted are those firms that are privately owned.





Graph 3. Firm Observations Based on Size/Listed or Unlisted by Regions

The charts below illustrate the number of observations based on size/listed/unlisted by regions. Small indicates those firms having less than 50 employees. Medium is for medium size firms with 50 to 500 employees, while Large are those firms that employ more than 500 employees. Listed are those firms that are publicly held. Unlisted are those firms that are privately owned. AFR symbolises the African region. EAP represents the East Asia and Pacific region. LCR is the Latin America and Caribbean region. MNA is the Middle East and North Africa region, while SAR represents South Asia.



Appendices

Table 1. Governance Indicators

This table reports the Pearson correlation statistics among the governance indicators. Voiceacc is an abbreviation for the governance indicator of Voice and Accountability; Politstab is the abbreviation for Political Stability and Absence of Violence; Goveff represents Government Effectiveness; Reg stands for Regulatory Quality; Rulaw is an abbreviation for Rule of Law and Corrup stands for Corruption. *** indicates a level of significance at 1%, ** is a level of significance at 5%, and * indicates a level of significance at 10%.

Correlation	Voiceacc	Politstab	Goveff	Reg	Rulaw	Corrup
Voiceacc	1.0000					
Politstab	0.6109***	1.0000				
Goveff	0.7941***	0.6986***	1.0000			
Reg	0.8095***	0.7814***	0.9257***	1.0000		
Rulaw	0.7043***	0.6444***	0.8635***	0.7860***	1.0000	
Corrup	0.6644***	0.7837***	0.9184***	0.8719***	0.8552***	1.0000

Table 2. Leverage with Firm and Country Fixed Effects

This table presents the estimations with firm fixed effects and country fixed effects.

Leverage	Firm Fixed Effects	Country Fixed Effects	
Constant	0.7364**	0.6656***	0.1592
	0.371	0.021	0.472
Tangibility	-0.0255	-0.1667***	-0.1667***
	0.023	0.010	0.010
Profitability	-0.0073**	-0.0205***	-0.0205***
	0.003	0.004	0.004
Small	-0.0001	-0.0924***	-0.0923***
	0.013	0.006	0.006
Large	0.0267	0.0537***	0.0538***
	0.018	0.009	0.009
GDP/Cap	-0.0424		0.0937
	0.052		0.081
Growth	-0.8972***		0.0694
	0.296		0.366
Inflation	0.0189		-0.0081
	0.018		0.020
Interest	0.1656***		0.2095***
	0.056		0.063
Tax	-0.1332		-0.3417***
	0.092		0.126
Bangladesh		-0.2303***	-0.1853***
		0.030	0.037
Brazil		-0.1414***	-0.4787**
		0.022	0.208
Cambodia		-0.4890***	-0.4903***
		0.026	0.038
Chile		-0.1323***	-0.3840*
		0.023	0.224
Ecuador		-0.0505*	-0.1666
		0.026	0.120
El Salvador		-0.0957***	-0.2411
		0.025	0.154
Ethiopia		-0.2708***	-0.1407*
		0.025	0.085
Guatemala		-0.2457***	-0.3715***
		0.025	0.136
Guyana		-0.3726***	-0.3890***
		0.024	0.091
Honduras		-0.2186***	-0.3380***
		0.025	0.107
India		-0.0676***	-0.0336
		0.022	0.042
Indonesia		-0.2318***	-0.2904***
		0.025	0.081
Malawi		0.0137	0.0656
		0.035	0.081
Morocco		0.0219	-0.0604
		0.023	0.120
Nicaragua		-0.2823***	-0.3544***
		0.024	0.075
Oman		-0.1594***	-0.4837*
		0.045	0.271
Pakistan		-0.3076***	-0.2727***
		0.022	0.049
Peru		-0.0084	-0.1787
		0.034	0.156
Philippines		-0.0970***	-0.1535

		0.024	0.094
South Africa		-0.1544*** 0.025	-0.3299* 0.184
Sri Lanka		-0.1074*** 0.026	-0.1529* 0.084
Syria		-0.4058*** 0.035	-0.4643*** 0.110
Tanzania		-0.1388*** 0.029	-0.1015*** 0.037
Observation	26415	26415	26415
R^2	0.9075	0.2299	0.2299

Table 3. Leverage for Small Firms with Firm and Country Fixed Effects

This table reports the firm and country fixed effects estimations for leverage of small firms.

Small Leverage	Firm Fixed Effects	Country Fixed Effects	
Constant	0.3322	0.6175***	-0.5043
	0.547	0.040	0.670
Tangibility	-0.0020	-0.1540***	-0.1540***
	0.029	0.013	0.013
Profitability	-0.0025	-0.0030	-0.0030
	0.004	0.004	0.004
GDP/Cap	-0.0001		0.1679
	0.076		0.113
Growth	-0.8180**		-0.2939
	0.407		0.509
Inflation	0.0094		-0.0270
	0.020		0.026
Interest	0.0885		0.1660*
	0.086		0.096
Tax	-0.0527		0.2815
	0.179		0.296
Bangladesh		-0.3457***	-0.3124***
		0.051	0.060
Brazil		-0.2098***	-0.6002**
		0.041	0.291
Cambodia		-0.5440***	-0.4449***
		0.042	0.068
Chile		-0.1540***	-0.5105
		0.041	0.315
Ecuador		-0.0565	-0.2325
		0.045	0.172
El Salvador		-0.1463***	-0.3847*
		0.044	0.217
Ethiopia		-0.3604***	-0.1427
		0.042	0.121
Guatemala		-0.3029***	-0.5358***
		0.042	0.194
Guyana		-0.4349***	-0.6162***
		0.042	0.138
Honduras		-0.3016***	-0.4618***
		0.043	0.153
India		-0.1542***	-0.1741**
		0.043	0.068
Indonesia		-0.3840***	-0.4992***
		0.045	0.118
Malawi		-0.0137	0.1289
		0.061	0.120
Morocco		0.0347	-0.1681
		0.042	0.172
Nicaragua		-0.3609***	-0.4420***

		0.042	0.110
Oman		-0.1935***	-0.6310*
		0.064	0.379
Pakistan		-0.3543***	-0.4209***
		0.040	0.080
Peru		-0.0789	-0.3664*
		0.051	0.219
Philippines		-0.1918***	-0.3261**
		0.046	0.137
South Africa		-0.0911*	-0.4153
		0.047	0.260
Sri Lanka		-0.2221***	-0.3396***
		0.050	0.125
Syria		-0.4523***	-0.6242***
		0.048	0.157
Tanzania		-0.1837***	-0.1086*
		0.049	0.059
Observation	12625	12625	12625
R^2	0.9096	0.2476	0.2475

Table 4. Leverage for Large Firms with Firm and Country Fixed Effects

This table presents the firm and country fixed effects for the leverage of large firms.

Large Leverage	Firm Fixed Effects	Country Fixed Effects	
Constant	1.1501	0.7061***	3.6643*
	1.577	0.059	1.968
Tangibility	-0.1362*	-0.1153***	-0.1145***
	0.072	0.033	0.033
Profitability	-0.0111	-0.0273**	-0.0273**
	0.012	0.011	0.011
GDP/Cap	-0.0796		-0.5287
	0.225		0.341
Growth	-0.4723		0.5113
	1.166		1.736
Inflation	0.0557		0.0779
	0.113		0.113
Interest	0.1039		0.1122
	0.181		0.195
Tax	-0.1209		0.0317
	0.268		0.417
Bangladesh		-0.0777	-0.0012
		0.077	0.115
Brazil		-0.1040*	1.1954
		0.062	0.865
Cambodia		-0.2943***	-0.2901**
		0.059	0.133
Chile		-0.2581***	1.2434
		0.064	0.928
Ecuador		-0.1595*	0.6487
		0.082	0.497
El Salvador		-0.1808**	0.8745
		0.089	0.632
Ethiopia		-0.2442***	-0.6785*
		0.077	0.351
Guatemala		-0.2829***	0.6423
		0.092	0.555
Guyana		-0.3168***	0.3064
		0.056	0.370
Honduras		-0.2850***	0.4263
		0.094	0.438
India		-0.1029*	0.1302
		0.058	0.149
Indonesia		-0.1072*	0.4390
		0.061	0.331
Malawi		-0.1982**	-0.6820**
		0.097	0.320
Morocco		-0.1603**	0.6563
		0.065	0.484
Nicaragua		-0.1987*	0.3041
		0.107	0.311
Pakistan		-0.3773***	-0.0588
		0.067	0.193
Peru		0.1929***	1.2227*
		0.063	0.633
Philippines		-0.1402**	0.5097
		0.060	0.378
South Africa		-0.1432**	1.0954
		0.065	0.761
Sri Lanka		-0.0912	0.4662
		0.063	0.331
Tanzania		-0.1819**	-0.2254*

		0.080	0.121
Observation	2865	2865	2865
R^2	0.8595	0.0534	0.0522

Table 5 Summary Statistics for Regions

	AFR	EAP	LCR	MNA	SAR	F-test	Prob
Leverage	0.3912	0.3831	0.3686	0.5519	0.3765	194.16	0.0000
LTD?TA	0.1278	0.1609	0.1188	0.0671	0.1816	216.93	0.0000
STD?TA	0.2588	0.2221	0.2475	0.4848	0.1946	701.05	0.0000
LTD/TD	0.2458	0.3906	0.2867	0.1274	0.4514	531.63	0.0000
Tangibility	0.4422	0.4544	0.4723	0.2916	0.4755	235.20	0.0000
Profitability	0.2386	0.3741	0.3942	0.1719	0.4495	103.11	0.0000
GDP/Cap	1333.998	891.45	3033.37	1860.032	518.50	6282.81	0.0000
Growth	0.0321	0.0234	0.0238	0.0364	0.0464	4800.00	0.0000
Inflation	0.0816	0.0850	0.0706	0.0132	0.0723	596.47	0.0000
Interest	0.1900	0.1436	0.3298	0.1247	0.1328	2733.12	0.0000
Tax	0.3057	0.3055	0.2036	0.3358	0.3905	16470.18	0.0000
Corruption	-0.2582	-0.7737	-0.0214	-0.0355	-0.5410	2095.07	0.0000
Civil	0.3168	1.0000	0.9731	1.0000	0.0000	38550.98	0.0000
Dbacba	0.7104	0.8219	0.2987	0.9204	0.8106	6732.05	0.0000
Stockmrk	0.6832	0.9481	0.8413	0.9307	1.0000	824.69	0.0000
Turnover	0.1971	0.2736	0.2029	0.0750	2.4210	10069.65	0.0000
Nrbloan	0.0609	0.1820	0.0746	0.1274	0.0566	5524.07	0.0000
Offdep	0.1841	0.0760	0.1564	0.1286	0.0731	719.61	0.0000

Table 6 Review of the SMEs literature

Bartholdy 2005	totalloans[15]	longbankloans[16]	bankloans[17]	shortbankloans[18]	Years	Database
Portugal	14.40	7.04	17.27	10.23	1990-2000	Bank of portugal statistical department non-listed companies
Bartholdy 2008	totalloans				1994-2004	Amadeus
	All	Small	Large			non-listed
Austria	43.82	55.41	41.73			
Belgium	32.93	32.08	37.88			
Denmark	43.26	41.30	46.37			
Finland	33.84	31.81	33.91			
France	23.49	23.64	24.39			
Germany	39.25	42.28	36.22			
Greece	22.24	20.40	26.95			
Ireland	27.56	28.11	32.40			
Italy	24.30	25.80	23.80			
Netherlands	17.91	19.41	14.59			
Norway	15.86	16.25	15.78			
Portugal	26.76	26.24	26.62			
Spain	22.38	21.83	24.03			
Sweden	28.74	28.95	28.25			
Switzerland	11.07	24.67	9.49			
UK	39.09	36.76	41.79			

[15] Totalloans equal long-term bank loans plus short-term bank loans plus creditors plus other current liabilities over the book value of assets.
[16] Longbankloans is defined as the book value of total long-term bank loans over book value of total assets
[17] Bankloans is the book value of both total short and long-term bank debt to total assets
[18] Shortbankloans is the book value of total short-term bank loans over book value of total assets

All	28.17	26.88	31.51		
Daskalakis and Psillaki 2008	TL/TA[19]			1997-2002	Amadeus
Greece	59.58				SMEs<250 employees
France	52.78				
Italy	76.44				
Portugal	59.85				
Daskalakis and Psillaki 2008				1997-2002	
Greece	60				
France	53				
France 98	55				
Greece 98	60				
France 99	54				
Greece 99	58				
France 00	53				
Greece 00	59				
France 01	52				
Greece 01	60				
France 02	50				
Greece 02	61				
Hall et al 2004		LTD/TA[20]	STD/TA[21]		

[19] TL/TA is the total liabilities to total assets

[20] LTD/TA is defined as long-term debt to total assets. Long-term debt includes long-term bank loans and other long-term liabilities repayable beyond one year, such as directors' loans, hire purchase and leasing obligations.

[21] STD/TA is the short-term debt to total assets. Short-term debt contains bank overdraft, bank loans payable within a year and other current liabilities.

Belgium		14.11	44.81		Dun and Bradstreet for 1995
Germany		28.46	38.22		SME<200
Spain		15.45	49.79		
Ireland		12.25	47.51		
Italy		14.53	62.96		
Netherlands		2.06	46.32		
Portugal		11.78	48		
UK		9.74	48.31		
Michaelas 1999	TD/TA	LTD/TA	STD/TA	1988-1995	Lotus one-source database of UK small firms
UK	42.2	11.9	30.3		small<200
1988	40.1	9.5	30.6		
1989	41.2	9.9	31.3		
1990	41.7	10.3	31.4		
1991	43.8	11.8	32		
1992	44.2	13.2	31		
1993	43.2	13.3	29.9		
1994	42.3	13.1	29.2		
1995	40.3	11.8	28.5		
Pettit and Singer 1985	TL/TA[22]		CL/TA[23]		
Large					
1966-68	48		20		
1978-80	58		30		
Small					

[22] TL/TA is defined as total liabilities to total assets.
[23] CL/TA is the ratio of current liabilities to total asssets

1966-68	57		37		
1978-80	67		43		
Sogorb-Mira 2005	TD/TA	LTD/TA	STD/TA		SABE
Spain	61.41	8.95	52.45	1994-1998	SME<250

Table 7 The relationship between leverage and debt maturity and firm level factors

	Tangibility	Profitability	Size
Bartholdy 2005			
Long term bank loans	+	0	+
Short term bank loans	-	-	0
Total loans	+	+	-
Bartholdy and Mateus 2008	+	-	+
Small	+	-	+
Large	+	-	+
Daskalakis and Psillaki 2008	-	-	+
Hall et al 2004			
LTD model	+	0	+
STD model	-	-	-
Michaelas 1999			
Total debt	+	-	+
Short term debt	+	-	-
Long term debt	+	-	+
Sogorb-Mira 2005			
Total debt	+	-	+
Long term debt	+	-	+
Short term debt	-	-	0

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